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Original Articles.

A CONTRIBUTION ON PATHI-FRACTURE AND LESIONS OF THE SOFT PARTS, WHICH INVOLVE THE ANKLE-JOINT.*

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Physical violence is frequently a cause of moderate or serious injury to the anatomical structures which compose the ankle-joint. There are few who have reached, or passed middle-life that have not, some time, in varying degree, so wrenched this articulation that they have, for a varying period of time, experienced more or less temporary inconvenience. Besides these trifling, unimportant cases, there is a large number of a more grave and serious character; of a simple or a mixed nature, which may involve alone or conjointly the osseous or arthritic elements.

The ankle-joint, though subjected to the greatest strains, and the most exposed in the body, manifests, in a singular degree, the power of resisting inflammation, and is seldom permanently anchylosed, as a consequence of vulnerating force. Although classified by anatomists as ginglymus, nevertheless motion well-marked, though of a limited range, is permitted in the direction of abduction, adduction and rotation. The head of the astragalus is the fulcrum for the leverage and action of the distal end of the tiba. The function of the fibula is mainly to steady and support the ankle. This joint is supported and powerfully acted on, by four sets of tendons, which cross it anteriorly, posteriorly, laterally, the two former in locomotion, and the latter chiefly, in steadying the leg on the foot. The ligamentous envelope which ensheaths the tendons and binds the malleoli to the astragalus is of great density and strength, and, like the ligamentous insertion of the quadriceps at the knee, into the patella, is so firmly incorporated with the external surfaces of the bones, that when put on a great and sudden strain, it gives way before the ligaments divide.

The ankle-joint is so formed, that without its extensive tendinous and ligamentous braces, luxation must be a common event. In its normal state this is scarcely ever possible without fracture of the epiphyseal ends of the tibia or fibula or both. In the production of lesions, attributable to indirect violence, which expends its force on the tibio-tarsal articulation, the tarsus, the astragulus and calcaneum are always passive agents, while the sole active factors are the leg, or the articular ends, of its two long shafts.

Although the epiphyses of the tibia and fibula appear before the third year, their complete union, or fusion, with the diaphyses, is not complete until the twenty-fifth year. According to Cloquet, (1) this process of development is sometimes delayed until the fortieth year, and the process of ossification may remain imperfect through life. The tibia and fibula are bound firmly together at the ankle-joint by a strong ligamentous band, which makes their separation difficult. The fibular shaft, inferiorly, except within an inch of its distal apophysis, is everywhere covered by muscular tissue, and is bound to the tibia above the ligament by the interosseous membrane. The long, broad, flange-like process of the fibula, which constitutes its inferior articular end, extends much farther down the lateral wall of the astragalus than its fellows. Its articulation with the head of the astragalus, though continuous with that of the tibia, is horizontal. The function of the

* Read at Annual Meeting of New York State Medical Association, Nov. 10, 1892.

1 *Anatomie des Os du pied*, p. 167, Cloquet.
1 *Anatomie des Articulations*, p. 203, ed. ii.

fibula, then, is severely limited to steadying, and not supporting the leg on the foot. The head and shaft of the fibula consist of more compact than cancellous tissue, hence are less resilient and more brittle than the tibia. The inner surface of the latter bone, from its superior articulation to its inferior, is wholly uncovered by muscular tissue; and as this bone in locomotion is subjected to constant concussive forces, it is rich in cancellous tissue, and is elastic.

Having thus far examined very briefly, into the structures and their arrangement which enter into the proximal segment of the ankle-joint, and the parts with which they are in immediate contact, it will be easier to intelligently appreciate those abnormal conditions here situated, which arise from accident. These may be divided into lesions of the soft parts; the tendinous, ligamentous and cartilaginous; and into those lesions of an osteo-arthritic character, in which there are combined, fracture and dislocation. Free action at the ankle-joint may be destroyed and a permanent crippling remain, after a severe sprain at this articulation, which primarily in no way affects the bones. Many of these sprains, if not so serious, may, however, give as much or more pain than a fracture, or require a longer time to recover from.

The pathological elements which enter into a severe sprain are entitled to summary review, in order to estimate the extent of injury as well as forecast the probable results; and, at the outset, it may be well to remember that the appearance of the soft parts, which enclose the joint, or are continuous with it, often bear no relation to the gravity of the injury. In a given case we may find the integuments greatly tumefied and discolored for a considerable distance above and below the joint, yet the patient has little pain, unless on motion, and in a short time recovers full functional use of the joint. With another, although the swelling is only moderate and there may be but slight if any ecchymosis, yet pain lingers, the inner surface of the dorsum of the foot is extremely sensitive to pressure, and this pain extends up along the leg, over the thecal envelopes of the tendons.

With these sprains of a more grave description it may be quite impossible to put any weight whatever on the foot. With those minor sprains of the first-class, there is always a free extravasation of blood into the capsule of the joint; often associated with a laceration of and leakage from the thin-walled veins in the cellular membrane. Hæmorrhage into a joint is quickly absorbed and gives rise to little inconvenience; the over-tension of the tendons and contusion of the parts promptly giving way to the bath, bandage and rest.

With the more severe phase of ankle sprain, important structures have been severely injured, and amytrophic changes with limitation or diminution of joint-action is sure to follow, if active and appropriate measures are not employed early. With many of these the ligaments have been ruptured, the nerves over-stretched or lacerated, the capsule of the joint over-strained; and with the bones, their periostial envelope or their cancellous elements may take on inflammatory changes. When the injury has not been very great, or vital parts have not sustained serious damage, and the patient has a sound physique, full functional restoration is generally secured.

Certain sprains of the ankle attended with over-strain of the tendons, and followed by inflammation of the synovial lining of the thecal envelopes of the tendons, synovitis, neuritis, periostitis, and arthritis, may end in anchylosis or muscular atrophy, with a weak, painful articulation. In one of these cases which I have seen, although there was moderate motion in the joint, yet along the cutaneous filaments of the internal division of the plantar and internal saphenous nerves, hyperæsthesia was most acute on the slightest motion, and locomotion, without the aid of crutches, was quite impossible for a long time.

In all the other cases which I have examined, there was anchylosis present, muscular or osseous. In some of them there was a retractured state of the sural muscles, requiring the use of a raised heel in walking. It goes without saying, that should this immobilized state of a joint be permitted to continue long enough, muscular wasting must invariably follow, with degenerative or organic changes in all the structures of the leg, ankle and foot.

Contusions of the Ankle.—Contusions of the ankle are always the result of direct violence, as kicks, blows or crushing injuries. Perhaps the most severe of the latter type which we encounter, are in large, modern cities or villages, occuring

in consequence of railroad injuries. The lower third of the leg to the heel, is mostly devoid of muscular tissue, as it is in its upper portion that the greater part of the muscles taper into tendons. In females this region is rotund, the bones being well covered with a thick layer of adipose tissue. In the healthy, active male, but little fat is lodged here; hence the bones and sinews are very superficial. This is preeminently the region of the body in which the consequences of degenerative, vascular changes may be most frequently seen and studied. It may be said, that fully 25 per cent. of all adults, either before or after fifty years of age, present disturbances of nutrition in the lower region of the leg; the subcutaneous cellular tissue undergoing absorption, the skin, through atrophic changes, parting with its natural color, vascularity, mobility and thickness, becoming on the inner aspect, very thin, brittle and intimately adherent to the underlying bone surface; the walls of the inner saphenous vein, with the superficial and deep tributary trunks, as a result of trophic changes in their muscular walls, enlarge or rupture their valves, undergoing very considerable dilatation, wasting and displacement or absorption. In all those cases, in consequence of an imperfect circulation, the periosteal envelope suffers from the effects of impoverishment; so that the osseous tissues of the tibial diaphysis are nourished chiefly through the deep arterial vessels which course through the canals of Havers, rather than those on the periphery.

As a result of these pathological changes, the integrity of the bone suffers serious impairment. It becomes fragile, and susceptible to injuries, which may pursue a chronic course; the shaft is more readily fractured, and is never again capable of perfect repair.

It is clearly apparent, then, the age and the previous condition of the parts at the seat of injury, must always, in a very large degree, determine the ultimate, definite results in every case of severe contusion of the soft parts, or the bone, with or without a laceration, in the vicinity of the tarsal ends of the tibia and fibula. The extent of sudden and great compression force which the skin can sustain without being wholly destroyed, or without the fracture of bone, and which it may wholly recover from, is astonishing. Many cases of this description have come under my observation. It was not until it had been proven, on the trial in courts of justice, and I had examined several well attested cases, that I could convince myself that it was possible for the wheel of a railway street-car to roll over the leg without inevitably affecting its complete destruction at the location of injury. Certainly, the rate of speed and weight of the car, whether empty, or heavily loaded with passengers, will make a difference in the the quality and extent of injury.

Lesions of the Soft Parts Overlying the Tibia-Tarsal Articulation Associated with Dislocation, or Fracture, or Both.—The force necessary to sunder the tendino-ligamentous junction at the ankle, sufficiently to separate the head of the astragalus from the articular ends of the tibia and fibula, at the same time opening widely the joint, with or without fracture, almost invariably causes such complete disorganization of the blood-vessels and nerve-trunks as to render amputation imperative. Such an injury always results from direct force, expending its energy on unlimited area. In this class of cases, the shock to the system is always well marked, and even though complete reduction is possible, a painful, palsied, or anchylosed joint remains. A complete, compound-displacement or dislocation of the head of the astragalus, out of the tibio-fibula mortice, I have never seen, nor can I find such a case on record, except in injuries mortal to the joint structures.

A visible, tangible, partial dislocation or luxation, either forwards, backwards, laterally, anterio- or posterio-lateral at the ankle-joint, is very rarely witnessed, without fracture of the diaphysis of the fibula and a diastasis of the apophysis of the tibia; in other words, the actual condition commonly encountered is a *fracture-dislocation*, the morbid anatomy of which is limited to physical disorganization of the bones, with a displacement of their articular surfaces, attended with hæmorrhage, laceration of the soft parts, and a condition favorable for the advent of inflammatory changes.

This brings us to a consideration of what is now-a-days commonly designated Pott's, or Dupuytren's fracture of the fibula. As this lesion derives its greatest interest and importance from the distortion or dislocation, which leads often to ultimate impediment in movement, this feature deserves special attention.

Pott's Fracture; Dupuytren's Fracture; Fracture and Dislocation of the Tibia and Fibula.—The lesion of the above designations, which is limited to the ankle-joint when the typical form is present, must always be regarded as a very grave injury; for, notwithstanding what may be said to the contrary by contemporaneous writers, our most improved methods of modern surgical treatment have rendered us little, if any, aid in obviating the diminished strength, joint action and deformity, which, with the patient in the hands of the most experienced, may occasionally follow. In many respects this injury resembles a Colles' fracture, a condition which, in spite of the almost endless varieties of apparatus devised for its treatment, has thus far defied surgical art, leaving the patient with a crippled or deformed hand in a certain number of cases.

Both are fracture-dislocations, occurring always, with very rare exceptions, in adult life, and in consequence of indirect violence. Like Colles', the typical injury in Pott's fracture is not so much confined to the bone elements as to the soft parts, the synovial membrane, the vessels, nerves and tendons. The ideal aggravated tibio-tarsal dislocation, accompanied with a diastasis or fracture, happily is not common, like the radio-ulno fracture dislocation. In a statistical table of all the fractures treated in the Harlem Hospital interne service, which has been very kindly prepared for me by Dr. George D. Kahle, the present house-surgeon, it will be seen that in 1,044 fractures of all kinds, there are but forty-four, set down as Pott's. About two-thirds of them came under my care; and, I may say, that among those there were none, not a single one, which did not yield to simple treatment and quit the service—when they remained with us during their entire course of treatment—with fairly useful joints, and little, if any, appreciable deformity. We have been fortunate. The arthritic lesions were not of a serious character, or our results would have been different.

Many of these cases, here tabulated occurring in my service, were not examined by me, as they were splinted and adjusted when I saw them; and hence, it is probable that there were several of them diagnosed by the *internes* as Pott's which were wanting, in all the essentials which go to make up that fracture. In no other way can I account for the discrepancy between our figures and Malgaigne's tables. He collected 160 cases, and found that they constituted but three per cent. of all fractures which entered his service. He saw no case in patients under fifteen years of age, and but two in patients over seventy years. In Dupuytren's 207 collected cases, two per cent. of all fractures were of this form and of these, ten per cent. occurred in females. Seventh-tenths occurred on the right side, and nearly two-thirds were met with in the winter season. This author maintained that fracture of the fibula was always consecutive to that of the internal malleolus.

Malgaigne (1) fixed the heel of the cadaver in a vice and made forcible adduction, when he found that the internal malleolus fractured first, the fibula fracturing consecutively. He then reversed the experiment, using the foot as a lever, and making forcible abduction the same sequence followed. On the contrary, Maissoneuvre, (2) repeating the same experiment, employing abduction, completely ruptured the internal lateral ligament, without always fracturing either malleoli; though when this occurred the force applied spent itself on the tibio-fibular ligament, and diastasis at the tibio-fibula articulation followed, permitting of a twisting, rotary motion and fracture of the fibula some distance from the joint.

Stimpson's (3) experiments on the cadaver seem to bear out Maissoneuvre's observations, for he says: "It will be seen that by fixing the leg and forcing the toes outward, while the ankle is held at right angles, the first to yield, is the exterior tibio-fibular ligament, then the anterior fibres of the internal lateral ligament, and almost coincidently the fibula breaks by the twisting of its lower end," etc. This author claims that the same sequence occurs clinically.

The incongruous results of the experiments of these distinguished authors are hard to reconcile, though it is quite obvious that the subjects experimented on were of different ages, or that there was a difference in the quality of force employed. In any event, deductions arrived at from experimental work on the bone of the dead body, possesses at best but a relative

1 Malgaigne: "Elementes de Chirurgie," Frac. and les Disloc., p. 307.

2 Maissoneuvre: "Fracture du Perone," etc., p. 173.

3 "Pott's Fracture at the Ankle," Mass. Med. Soc., June, 1892.

value and can under no circumstances be regarded as definite and conclusive.

Such are the theories as to causation from an experimental stand-point; but, as we are dealing with lesions on the living being, it may be well to stop for a moment and review the influences which bring about the so called fracture of Pott, during life. The first influences, which we must not lose sight of, are those innate to the bones themselves. This fracture is scarcely ever seen until the processes of ossification are complete. The premature ossification of the bone, or a preponderance of compact non-vascular tissue, may favor a morbid brittleness, so that a wrench or twist produces here what is known by the French as fracture *par arrachment;* whereas, otherwise, nothing but a severe sprain would follow.

Varieties of fracture—Dislocation of the Ankle Joint.—It has been seen then that it is only when the extent of dislocation is considerable, the displacement and laceration of nerve, tendon and ligament extensive and that a double fracture has occurred, that there is present a condition of a very serious character. But there are many intermediate phases of this injury, in which the degree of destruction, or derangement of one structure, is much in excess of another; for it is as absurd as it is erroneous to assume that every case of tibio-fibular diastasis, or apophyseal separation of the tibial flange, with or without fracture of the fibula, is a grave injury, demanding special and protracted care. In those cases in which the extent of separation of the broken internal malleolus and the degree of regular deformity is not great, reposition and retention are attended with no difficulty. When the head of the astragalus has sprung back into its socket and thereby maintains perfect extension, the interosseous-membrane aids in fibular fixation; so that, no matter how oblique the fibular fracture may be, its coaptation and solid union are readily effected.

In a severer form of Pott's fracture, intra-articular hæmorrhage, cellulitis or synovial inflammation are complications which may greatly retard recovery, or terminate in an inflammatory infiltrate of osseous or other cellular deposit; which, external to the articulation, may cause an undue pressure on the neural cords on their way to the foot; a muscular or tendinous anchylosis; or an undue pressure on the blood-vessels. In another, the most serious and unmanageable of all phases of fracture-dislocation at the ankle, along with a double fracture, the dense, broad, internal lateral ligament is completely torn in two, on the same line as the tibial apophysis is snapped off. By this rupture the equilibrium of the joint is lost; the foot, fixed with the weight of the body concentrated on the horizontal articular surface of the tibia, which has now lost its moorings, now turns on its own axis, and, in this twisting motion, sunders the tibio-fibular union; the same spiral motion ascending splits the fibula shaft in its most brittle and exposed part. The head of the astragalus having left its mortice, may occupy various relations with the articular surface of the tibia. Now the powerful and unopposed muscles of the leg, acting on the foot, through spasmodic contraction cause great displacements, tear widely open the capsule, and cause a great derangement, contusion and laceration of the vascular and neural elements lying in close relation to the joint.

Subsequent inflammation from this violent sundering of a powerful joint is inevitable. It would be quite inconceivable that after treatment of any description, anything like perfect functional restoration after an injury of this description were possible. And such is the case. The swollen sensitive joint can be retained with safety, by resort to pressure or traction sufficiently long to complete repair; but admitting this, by the time the adjustment could be removed, we should have solid, fibrous or osseous anchylosis.

This latter type, then, and this only, is that which Percival Pott so fully and clearly described, and is the only fracture at the ankle which should bear his name.

Diagnosis.—When there is a difference of opinion as to the precise morbid structural changes which constitute a certain specific lesion, it is clear that a definite diagnosis of it is attended with many difficulties. This is particularly the case with apophyseal fractures. It was most unfortunate that this injury ever was designated *Pott's* fracture, for the theory of causation as described by the English surgeon, and the principles of treatment formulated by him, were disputed by Dupuytren, and have in a large part recently been ignored by Stimpson. This wide divergence of opinion on cardinal features would imply that it was not quite the

same lesion on which each made his observation. It would greatly aid then in diagnosis if this so-called Pott's fracture were simply designated "fracture dislocation" at the ankle joint, when we find luxation or sub-luxation coincidently with fracture. From the same precise physical phenomena as obtain in Pott's, we may have a fracture with or without displacement of the internal or the external condyle. I have seen a considerable number of these cases, in winter seasons, when the patient will tell us that he stepped on a cinder or cobble-stone and "turned his ankle." In these cases the internal or the external lateral-ligament has given way, often permitting a rolling inward or outward of the head of the astragalus, with an inversion or eversion of the part, thus constituting another type of fracture-dislocation.

When there is complete separation and mobility, these fractures may be readily detected without difficulty at the first examination. If there be no displacement, then, unless the muscles are well relaxed and considerable force is employed, crepitus is absent, and the presence of a fracture must often remain in doubt; then, I hold, the employment of an anæsthetic with violent manipulation must be condemned.

One should always hesitate in cases of fracture dislocation at the ankle, when a break in the bones is unquestioned, to at once stamp it a Pott's fracture, for the profession, as a whole, have an exaggerated notion of the seriousness of this lesion; and, as has been pointed out, it is only in those cases attended with marked irreducible dislocation and extensive damage to the arthritic structure, that this designation is at all applicable.

Treatment of Sprains, Contusions and Fracture-dislocations at the Ankle-Joint.—The treatment of sprains and contusions may be studied together, for the same line of treatment dominates in both when neither is attended with laceration of the skin. Our measures should vary according to the different phases of pathological changes presenting. If called immediately after injury, the end will generally be met by applying such a therapy as will relieve pain and give the patient comfort. Our efforts should also be directed energetically with a view of preventing the development of inflammation. The limb should be placed in an elevated position, well supported, the use or disuse of the bandage depending on the manner in which it is tolerated. In most cases, applied early, before the supervention of inflammation, it is of infinite value, to relieve the arterial throb, overcome muscular spasm, and steady the joint. If there be very much pain, with or without tumefaction, and there is sanguineous effusion into the capsule or soft parts, then the free application of leeches and local depletion is a powerful prophylactic against pain and subsequent inflammation. Bathing, either cold or warm, rubifacients or counter-irritants, will be required in many, and serve a useful purpose.

One of the most important questions of late years in the surgical treatment of severe joint contusions and sprains has been with reference to immobilizing the limb—giving it rest, as it is said. Immobilizing a sprained ankle-joint by plaster-of-paris, as a conventional method, is a practice which cannot be too strongly condemned. It is true that the injured part needs temporary rest, but physiological rest must not be confounded with immobilization. The joint may be amply supported by the simplest sort of ordinary splinting, which will permit of ready removal, moderate motion, massage, application of medicaments to the bandage, and other measures. But, with the knee flexed and the sural muscles relaxed, a well-padded bandage applied, and the limb swung or supported, any sort of splinting is very often unnecessary. Since, then, any sort of permanent fixation is so liable to be followed by anchylosis, we must be on the alert for this unfortunate sequela, and in the general run of cases, if it supervene, we are responsible for it.

It is surprising with what rapidity degenerative changes set in in contiguous parts after joint injury, when all joint motion is completely arrested. There is in the child an immediate cessation of growth, and in the adult so profoundly are the nutritive processes affected, that atrophic and degenerative changes pursue a swift and destructive course, so that, after the lapse of but a few weeks, all hope of restoration of normal joint-action is forever destroyed. Passive motion, then, should be contemporaneous with other measures. When, owing to the severe and unbearable pain which this may give rise to, it cannot be practicedf then we may be assured that the brunt o, injury has been borne rather by the bone

than the soft parts, and that pathological changes are advancing in the bone element, which we can only modify or arrest, by bold and prompt antiphlogistic procedures.

It is obvious, then, that in severe ankle-joint concussions or twists we must treat them with promptness, energy and patience, avoiding above all things protracted immobilization; and with the child, in whom arrest of growth in the affected limb means crippling for life, employ no device which might seriously interfere with nutritive processes. Should anchylosis, however, follow our treatment, or be present when we are called to attend the case, let us be assured that it is a stiffening and joint distraint, arising entirely from positive molecular organic changes, before we decide that it is beyond relief and are content with the let-alone policy. I have seen quite a number which have been entirely cured of their lameness, more than a year after their injuries, by thoroughly breaking up the adhesions in and about the joint. Of course, it is needless to say that before one will undertake to break up an anchylosis, he must very carefully examine the bones and test the muscles, or he will, in unfit cases, surely fracture the shaft, as I did myself in two patients, in my very early experience. In both cases the bones were more fragile, through pathological changes, than were the adhesions.

The management of Pott's fracture, by those best known to the profession as authors of treatises on fractures, has been on most divergent lines. Dupuytren and Hamilton bound the foot and leg to an internal splint, with the foot markedly abducted, the several muscles being relaxed by the bending of the knee. Pott himself said little about splints, but attached great importance to posture. Speaking about this, he said: "The limb should be laid on its outside, with the knee moderately bent; by this the muscles forming the calf, and those tendons which pass behind the fibula and under the os-calcis, are all put in a state of non-resistance, when all trouble and difficulties will vanish immediately. The foot being easily placed right, the joint reduced, and by maintaining the same disposition of the limb, everything in general will succeed very happily, as I have often experienced."

The more modern plan of fixing the fragments and the joint is by splinting material applied about the joint, the limb extended and resting on its dorsal aspect. Such is the plan recently recommended by Prof. Stimpson. But let us not forget, that we are something more than moving automatons, and in dealing with this species of injury, we should as in any other, treat it on sound surgical principles, regardless of the individual preferences of different surgeons. Let us appreciate the fact that we have a fracture opening into a joint, with more or less displacement of the articular surface. When the tibial head is driven far forward and torn through its capsule, the anterior and annular ligaments, there are no means known to science by which we can give our man a new set of ligaments; and hence this dislocation, as others which we occasionally see, may be entirely irreducible, or, if reducible, it cannot be retained, without dangerous pressure, or anchylosis. When the head of the astragalus is anterior, and the tibial surface posterior and below it, extensive, ligamentous laceration or overstretching is inevitable. Decided lateral luxation entails, also, either rupture of the ligament, or else it has given way only by a tearing off at its osseous surface of attachment, even carrying some of the bone substance with it. It is clearly apparent, then, that as this element of dislocation in aggravated cases predominates, its efficient reduction and retention are what should particularly concern us. For the efficient accomplishment of this purpose postural treatment occupies preeminently the front rank. Muscular relaxation, topical applications, the bandage with appropriate supports, will, as Pott has well said, suffice in most cases. It must not be overlooked, however, that when joint disorganization has been very considerable, and active inflammation follows, defective joint action with deformity can, in no way, be wholly obviated.

Whatever line of mechanical treatment may be instituted, it is well to know that this has its limitations, and, if misdirected or too protracted, may conduce to a pathological condition and make the joint and foot more serious than if nothing whatever had been done. The trophic changes, wasting, and loss of function which invariably follows, in varying degrees, traumatic or pathological joint lesions and fractures, are clearly and concisely described in a classical production recently presented before the American Orthopædic Association by Prof. Roswell Park ("A Study of Atrophy," *Gaillard's Medical*

Journal, October, 1892). The conclusions in this brochure, derived from the experimental and clinical observations of French, German, English and American surgeons, are remarkable and valuable for the general accord with which all agree:—that an injury to the shaft of a bone, or to any of the joint structures, an arthritis or osteo-arthritis, which causes protracted inaction or long-continued immobilization, invariably induce an arrest of growth, degeneration of bone-substance, muscular wasting, with impaired or entire loss of function in the affected limb. Therefore, in traumatic osteo-arthritic lesions, in fracture-dislocations at the tibio-tarsal articulation, as in a Colles' fracture or a fracture opening into the elbow-joint, the greatest caution should always be observed in severe cases, to remove every sort of fixation apparatus, at the earliest possible date; with a view of commencing passive exercise, and thereby preventing organic changes in the structural elements of the bone and muscles, which might lead to temporary or permanent muscular or arthritic anchylosis attended with a low grade of synovitis and a bloated, œdematous phase of cellulitis.

For the purpose, then, of maintaining the normal nutrition of the joint, and obviating, as far as possible, subsequent impediment in motion and diminution in strength, massage, friction, uniform but interrupted pressure, early and constant, are important and vital accessories. The precise time at which digital manipulation and ankle motion should commence will depend, in a certain measure, on local conditions. If there has been an extensive rupture of ligament and tendon, any disturbance of adjustment-pressure is immediately followed by a subluxation; then immobilization must be continuously maintained over a considerable period of time, though at the expense, perhaps, of an anchylosed joint. But this condition is exceptional. In those cases in which the chief lesion is osseous, the propriety of disturbing the fragments by early handling of the foot might be questioned, as such interference might seem to retard union, or render it less effective.

My experience, however, in the treatment of fractures in general, as well as those here considered, has been that the changing of dressings, moderate kneading of the muscles, with slight motion of the fragments, seems rather, on the contrary, to stimulate processes of repair and accelerate osseous fusion. Fortunately, in any event, in these ankle-lesions, in which after the most judicious treatment the range of motion is restricted or is entirely lost, still, with a stiff joint the limb often remains firm and useful, a thousand-fold more so, than any artificial substitute can ever render it. In those extreme cases, in which, through tibio-fibular diastasis and ligament rupture, there has been an irreducible axial rotation of the head of the tibia on the articulating surface, with pronounced posterior or lateral displacement, a weakened, crippled joint remains, which necessitates in locomotion the comfortable adjustment of some sort of prothetic appliance, which will give ample support, and, perhaps, prevent pain, on motion of the limb.

My practice is never to undertake to liberate a joint with any anæsthetic. The two accidents cited happened while my patients were under ether. While, on the contrary, in every instance in which I have been able to open the surfaces, by a sudden but cautious motion, without ether, the results have been permanent and good. In my judgment, it is much better, in genuine, osseous anchylosis, to divide some of the tendons and open the joint if necessary, if otherwise the application of great force is rendered necessary.

FRACTURES OF FIBULA AND POTT'S FRACTURE.

Diagnosis	Male.	Female.	Cured.	Improved	Unimproved.	Cured.	Discharged.	Transferred.
Fibulæ:								
Simple	22	2	14	10	.....	.....	13	11
Compound	2	.....	2	.....	.....	.....	2	.....
Comminuted	1	.....	1	.....	.....	.....	1	.....
Pott's:				....				
Simple	36	11	35	12	.....	.....	32	15
Compound	2	.....	2	.....	.....	.....	2	.....
Total	63	13	54	22	.....	.....	50	26

Actual number of deaths from fractures, including traumatic amputations, etc., 117, showing a mortality of 9.4 per cent. of cases treated.

Ratio of cases cured is 70 per cent., which is exclusive of those transferred as improved and unimproved immediately or shortly following the time of receiving the injury.

RESUME.

POTT'S FRACTURE.

Number occurring in the male	38
Number occurring in the female	11—49
Of the right leg	16
Of the left leg	15
Leg undesignated	18—49

Summary of Ages.

Yrs.	No.	Yrs.	No.	Yrs.	No.
Under 20...	1	30–40...	15	50–60...	4
20–30...	16	40–50...	11	Over 60...	2

Months of Year Occurring.

Jan.....	6	April.....	2	July...	3	Oct ...	4
Feb.....	5	May.....	4	Aug....	3	Nov...	4
March..	5	June.....	2	Sept....	4	Dec...	6

Summary as to Seasons.

Spring, 11 Summer, 8 Autumn, 13 Winter, 17

Percentage.

Percentage of Potts' fractures to total number of fractures treated, exclusive of those of metatarsus, phalanges, etc., 4.009 per cent.

FRACTURES OF FIBULA.

Number occurring in the male..... 25
Number occurring in the female..... 2—27

Of the right leg..... 10
Of the left leg..... 9
Leg undesignated..... 8—27

Summary of Ages.

Yrs.	No.	Yrs.	No.	Yrs.	No.
Under 20...	2	30–40...	9	50–60...	2
20–30...	9	40–50...	4	Over 60...	1

Months of Year Occurring.

Jan.....	5	April.....	3	July.....	7	Oct.....	1
Feb.....	1	May.....	3	Aug.....	1	Nov.....	2
March....	1	June.....	0	Sept.....	2	Dec.....	1

Summary as to Seasons.

Spring, 7 Summer, 8 Autumn, 5 Winter, 7

REPORT OF FRACTURES TREATED AT HARLEM HOSPITAL

Exclusive of Phalanges, Metacarpus and Metatarsus, Carpus and Tarsus), from January 1, 1887, to September 1, 1892.

Diagnosis.	Male.	Female.	Cured.	Improved.	Unimproved.	Died.	Discharged.	Transferred.	Complications and Remarks.
Skull Simple	19	...	12	1	3	3	15	...	[compl., 1; operation, 2.
Compound	33	5	29	2	6	6	27	...	Of base, 3; radius, 1; clavicle, comp.
Compound depressed	42	3	27	2	14	15	29	...	Operation in 39 cases.
Com'p'd depr'd and multiple	1	1	1	...	1	1	1	...	Of base, 1 case; operations, 2.
Com., compl., commi., depressed	1	...	...	...	1	1	...	...	Gunshot wound.
Simple multiple	1	...	...	...	1	1	...	...	.....
Simple depressed	...	3	2	...	1	1	2	...	.....
Of base	38	10	5	1	34	42	5	1	.....
Nasal bones: Simple	4	...	4	...	...	...	4	...	.....
Compound	6	1	7	...	...	...	7	...	.....
Zigomatic process: Simple	1	...	1	...	...	...	1	...	.....
Superior maxilla: Simple	11	1	11	...	1	1	10	1	Death from other injuries.
Compound	2	...	2	...	...	...	2	...	[of skull.
Compound complicated	1	...	...	...	1	1	...	...	Also comp., compl., commi't'd fracture
Inferior maxilla: Simple	24	2	22	1	3	3	22	1	Other injuries complicating, 3.
Compound	15	...	13	1	1	1	12	...	Other injuries complicating, 1.
Malar	1	...	1	...	...	...	1	...	.....
Vertebræ	21	3	2	1	13	19	3	2	.....
Ribs: Simple	82	9	52	31	5	3	50	38	Other injuries complicating, 3.
Compound	6	1	6	...	1	1	6	...	Other injuries complicating, 1.
Multiple	4	1	5	...	...	...	5	...	.....
Complicated	15	...	3	...	12	12	3	...	.....
Pelvis: Ilium	15	...	13	1	1	1	13	1	.....
Pubes	4	...	1	...	3	3	1	...	.....
Sternum: Complicated	1	...	...	...	1	1	...	...	.....
Clavicle: Simple	65	7	60	10	2	2	59	11	Other injuries complicating, 2.
Compound complicated	1	...	...	...	1	1	...	...	.....
Scapula: Body	25	4	23	3	2	2	23	4	Other injuries complicating, 2.
Coracoid process	1	...	1	...	...	...	1	...	.....
Acromion process	6	...	6	...	...	...	5	1	.....
Humerus: Simple	50	13	52	6	5	5	51	7	Other injuries complicating, 5.
Compound	15	4	14	...	5	6	13	...	Other injuries complicating, 2.
Internal complications	1	1	11	...	...	...	11	...	.....
Comp., compl., and commi'd	...	11	11	...	...	...	11	...	.....
Radius: Simple	82	21	91	7	12	11	85	7	Other injuries complicating, 11.
Compound	9	1	7	2	1	1	7	2	Other injuries complicating, 1.
Greenstick	1	1	2	...	...	...	2	...	.....
Ulna: Simple	27	5	30	1	1	1	30	1	Other injuries complicating, 1.
Compound	5	1	5	...	1	1	4	1	Also fracture of skull, 1.
Olecranon process: Simple	5	1	5	...	1	1	5	...	Fracture of skull, 1.
Compound	2	1	2	...	1	1	2	...	Died from senility and other injuries.
Radius and ulna: Simple	16	5	19	...	2	2	19	...	Other injuries complicating, 2.
Compound	7	6	6	...	3	3	6	...	Other injuries complicating, 2.
Comp., Compl. and commi'd	1	3	3	1	...	...	3	1	.....
Femur: Simple	49	19	46	12	10	9	47	12	Other injuries complicating, 8.
Compound	10	...	5	...	5	5	5	...	Other injuries complicating, 2.
Multiple	2	...	1	...	1	1	1	...	Other injuries complicating, 1.
Trochanter major	2	...	2	...	...	...	2	...	.....
Intra-capsule	9	8	6	11	...	...	6	11	.....
Patellæ: Simple	12	3	12	2	1	1	13	1	Other injuries complicating, 1.
Compound	3	...	3	...	...	...	3	...	.....
Tibia: Simple	57	8	43	20	2	2	40	23	Other injuries complicating, 2.
Compound	36	2	24	12	2	2	25	11	Other injuries complicating, 2.
Fibula: Simple	43	11	43	11	...	..	34	20	.....
Comminuted	4	...	3	1	...	...	3	1	.....
Compound	13	2	11	...	4	4	11	....	Other injuries complicating, 4.
Pott's: Simple	42	5	35	12	...	...	32	15	.....
Compound	2	...	2	...	...	...	2	....	.....
Tibia and Fibula: Simple	48	12	29	28	3	3	29	28	Other injuries complicating, 3.
Compound	48	6	29	13	12	12	29	13	Other injuries complicating, 7.
Total	1045	197	871	193	178	190	838	214	.....

EXPERIENCES IN PELVIC SURGERY.*

By A. V. L. BROKAW,
ST. LOUIS, MO.,

PROFESSOR OF ANATOMY AND DEMONSTRATOR OF OPERATIVE SURGERY, MISSOURI MEDICAL COLLEGE; SURGEON TO ST. JOHN'S HOSPITAL; CONSULTING SURGEON TO CITY AND FEMALE HOSPITALS, ST. LOUIS, MO.

Of all the surgical problems difficult to solve it may be truthfully said that those met within the pelvis are the most trying. I know of no surgical work which can compare with the experiences found in the pelvis; such a diversity of conditions, complications and unexpected happenings are ever presenting.

In a series of many operations but few will be alike in every particular. Uncertainty of making an absolutely correct diagnosis before operation enters largely into the experience of all operators in this field.

When I had a little experience in this work I could always make a diagnosis and quite frequently verify it after operation. With an increasing experience, I find myself well satisfied with an approximate diagnosis.

The diagnoses of the pus cases are usually clear, and one makes a correct diagnosis in the majority of cases. It is in the other pelvic conditions where we make our errors of diagnosis. We might very properly state that only those without operative experience, or the theorists, always make a correct analysis of their cases. Individually, I frankly admit my inability to correctly diagnose the character of abdominal and pelvic troubles increases as my experience becomes larger. I have diagnosed pus tubes and found extra-uterine pregnancy; diagnosed extra-uterine pregnancy and found pus; diagnosed ovarian lesions and found the trouble located in the tubes and *vice versa*.

This experience tallies with that of all the most prominent workers in this domain of surgery with whom I have conversed.

The bad results in pelvic work are frequently found to be the result of neglect, often of ignorance, and very frequently of a want of resolution in the attendant. An early use of the knife in many cases which eventually pass into our hands would have given far more brilliant results, and improved generally the present statistics in pelvic surgery. The number of cases we see in the early stages of disease are relatively few; by far the greater number are in a late stage of disease, and not a few on the verge of dissolution.

The criticism passed upon pelvic surgeons, that they often operate when operative proceedings are unnecessary is usually unjust, and simply the gratuitous statement, actuated by bad motives, of those without personal experience. No conscientious, earnest surgeon has a thought but for the best interest of those placed under his charge.

When well defined pelvic lesions exist nothing short of radical measures succeed. Abortive attempts at dealing with pus or other threatening conditions only bring disastrous results. I am a believer in the conservatism so well defined by McMurtry in a recent paper, and I heartily recommend the perusal of that erudite article to the critics who never operate.

That needless, reckless surgical procedures are perpetrated in the pelvic work of a few we will not attempt to deny; however, the same is true in other directions, particularly so in the cerebro-spinal surgery which recently threatened to become epidemic.

The routine gynecologists are largely responsible for much of our work. By a routine gynecologist, I refer to the gynecologist who treats all his cases alike. One who introduces a speculum, paints the cervix with iodine, makes local applications to the cervical canal or within the uterus itself, insufflates some boracic acid, introduces a glycerine tampon or pessary and requests the patient to come again in two days. This soft impeachment cannot be denied.

The specialist should recognize conditions imperatively demanding operative interference and not nurse cases along in the described manner until they become "wrecks"—wretched examples of what electricity, the sound, dilator and cautery can do for women.

What I have said in these paragraphs does not apply to all specialists in women's diseases, but, unfortunately for the other sex, it does apply to the majority. Much of my work comes to me after all the

* Read before the Southern Surgical and Gyn. Association, Nov. 16, 1892.

methods of minor "gynecological tinkerings" have been exhausted. The most difficult "pus" operations I have performed have followed prolonged treatment at the hands of gynecologists, or better, the pseudo-gynecologists. An example of the character of the cases one meets with after meddlesome manipulations with the sound will be *apropos*:

Mrs. C., suffering with dysmenorrhœa of some severity, was recommended to a local specialist who told her "that the mouth of the womb was closed up" and it would be necessary to dilate it at once, which operation he immediately set about to perform. A uterine sound was introduced. This caused no little pain, but she was assured that was to be expected. At midnight her attendant was summoned in haste to see his patient suffering excruciatingly. A high temperature and great abdominal tenderness were present, and then for six weeks, a severe form of peritonitis was combated. As a result of the opium treatment of the peritonitis the patient became addicted to morphine; was treated by various local neurologists and wound up in Philadelphia where she was temporarily cured of the habit by Dr. Mitchell. While in the East she was examined by our distinguished friend, Dr. Barton Cook Hirst, who advised operation for well marked tubular disease and abscess of the ovaries. The case was referred to me for operation after her return, St. Louis being her home. Operation revealed universal adhesions, multiple pelvic abscesses, ovaries and tubes containing several ounces of pus. The adhesions were dense and the most difficult to deal with that I have ever met. The serous coat of the neighboring intestine was stripped off in many places in the process of enucleation. After a free flushing, a tube was introduced and my troubles began. The morphia mania returned, the patient became uncontrollable and insisted on having morphine whenever she desired, in spite of earnest entreaty. From then on she took full charge of her case and the nurses were unable to manage her. The tube began to discharge fecal matter on the third night after the operation and continued to do so for seventeen days, when it suddenly ceased, the stercoracious fistula closing rapidly.

I might detail other cases which have come under my observation demanding operative interference where the inflammatory conditions were the result of the introduction of the sound, caustics, etc.

But a few weeks since, it was necessary to operate in an emergency on a leaky pus tube which had its origin in a like manner. The original tubal disease had been treated with an intra-uterine grooved stem pessary, the idea of the attendant being that drainage *per viam naturales* would follow. Vaginal incision is a favorite method of treatment of pelvic pathological collections with some. In my experience but few, if any, of these cases can be considered properly or perfectly cured by such means.

We find multiple abscesses in the largest proportion of cases which cannot be drained by efforts so blindly and indirectly made. The abscesses may or may not communicate with one another and usually but one such abscess would be drained by a single vaginal incision. To illustrate: An intelligent practitioner recently requested me to see his wife who had been having recurrent attacks of peritonitis. She had undergone a vaginal incision eighteen months before her present attack of peritonitis. Was relieved for a few months, but latterly had been losing ground on account of numerous attacks of peritonitis. I found the pelvis choked up with inflammatory masses, a fixed uterus, and at site of the old incision, a soft bulging point in the otherwise board-like vaginal vault. Her husband wished me to open the threatening abscess, which I refused to do as a matter of principle. The abdomen was distended with signs of an aggressive peritonitis present. A temperature of 103° and over had existed for two weeks prior to my visit. I suggested a section which was not agreed to. A few days later I was summoned in haste. All the symptoms had become aggravated and her condition, indeed, alarming. Consent was given to an operation. The peritoneum was thickened, omentum agglutinated in every direction, matted intestines, a pint of pus in the pelvis, multiple abscesses surrounding the uterus on all sides. An abscess the size of an egg isolated from the other pus collections proved to be the one pointing into the vagina. The abdomen was flushed, tubes inserted and my late evening visit found a normal temperature. Recovery from that time on was uneventful. Had I been persuaded to

make the vaginal incision, the register would have "rung up" another surgical failure.

An experience in extra-uterine pregnancy forces upon me the wisdom of Tait's law of exploratory incisions in obscure diseases of the pelvis and abdomen. The force of his arguments cannot but grow in favor and importance in the estimation of any one with surgical instincts who desires to do what is best for his patient.

The one condition above all others where exploratory incision should be adopted is in cases of suspected extra-uterine pregnancy. It is correct and good surgery to open the abdomen and not wait for all the classical signs to appear. They may come it is true, and your patient may be lost by procrastination. It may not meet with the kind accord of this body of distinguished specialists, but it is my belief that in all cases of suspected extra-uterine pregnancy it is best to do an exploratory operation—a short clean incision. If nothing is found you have at least relieved your mind of anxiety born of the fearful experience such cases can only give. What surgeon hesitates to operate in accessible aneurisms? Yet in extra-uterine pregnancy, do we not have a condition equally as bad? The text-books advise that electricity and other measures be tried first and operative procedures later. The results of such teaching, we read of in the mortuary columns of the daily press. The symptoms of extra-uterine pregnancy are so frequently obscure and unreliable that I am firmly convinced that the radical position taken is correct.

An example of an unusual history in a case of extra-uterine pregnancy is now under my care. Operated upon three weeks ago. Mrs. T., æt. twenty-eight, the mother of four children; desirous of no further increase in her family, having missed one period, on advice of a neighbor took repeatedly large doses of oil of tansy; was seized with flooding and supposed she had aborted. Hæmorrhage became profuse. After several days called in a physician. "Had some fever and slight chills." The discharge was offensive, the womb curetted with a blunt curette and a few clots removed. Fever did not abate but rapidly rose; great tenderness and symptoms of peritonitis rapidly developed. Was seen by me the night of the eleventh day. Temperature 105°; surroundings were bad and patient was sent to the hospital at once. Operation early the following morning. Appearance of patient peculiarly bad, pulse weak. Section, abdomen filled with blood, extra-uterine pregnancy right side. Patient's condition on the table alarming,—almost pulseless when abdomen was opened, Tubes rapidly enucleated and tied off; free saline irrigation; drainage tube placed in position; usual treatment of impending collapse instituted. Reaction very gradual, but followed by complete recovery. Temperature never reached above 101°, normal after the first week.

My faith in the dorsal position, short incisions, drainage in nearly every case and free use of hot water, remains, and I do not see the advantage, if any, of a departure from such technique.

SHOCK.*

By JAMES EVANS, M. D.,
FLORENCE, S. C.

In the severe injuries inflicted on the body by accident and the major operations of surgery, not the least element of danger to life is the condition known as shock, which rapidly supervenes. The torn and lacerated tissues may involve only a small area, the hæmorrhage may be inconsiderable in amount, or the limb which has been crushed may under other circumstances be removed without any great menace to the life of the individual, yet the shock may be so profound and persistent as to resist all efforts to avert death. The degree of shock is not determined solely by the extent and gravity of the physical injury. Certain idiosyncrasies of constitution, the character of the force which inflicted the injury, and the circumstances under which it occurred, are potent factors in its determination. Individuals of a highly wrought and exquisitely sensitive nervous organization bear pain with far less fortitude, and are more susceptible to shock than those of dull and obtuse intellects and blunted sensibilities. If the agent which has caused the injury has vividly impressed the mind with its great power, and that it is capable of exerting a force irresistible and crushing in its character, the shock is always pro-

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nounced. A shell-wound is usually attended by more shock than one from a ball, although there may be no greater destruction of tissue. A similar reason may be assigned for the severity of shock in railroad accidents, and the injuries inflicted by powerful machinery. It is evident, therefore, that the physical injuries are not the only cause of that assemblage of symptoms which is designated *shock*.

The prime factor in its production is the impression made on the mind by the perception of the threatened danger, and the serious consequences which may follow whatever wounds may be inflicted. The condition is not originated by, but precedes the infliction of the injury. The irritation of the nerves of sensation at the point of injury is propagated to the central nervous system, and there likewise originate impulses which being transmitted to the medulla start into action the same reflexes, and the state is thus indefinitely intensified and maintained. Fear is capable of producing such a profound degree of shock as sometimes to cause speedy death, and this result frequently takes place even before an inevitably fatal injury is felt. Even in cases in which the body has sustained no injury the effect is so pronounced and persistent as to cause serious illness, which may continue for many days thereafter. This phase of it is well illustrated in an incident which occurred in the neighboring town of Cheraw.

In laying the foundation of a bridge across the Pee Dee River at that place, an immense block of granite weighing over a ton was being lowered into a pit forty-four feet in depth; at the bottom was a man who was to direct it into the proper position. When this huge block of stone was suspended over the pit the cable holding it began to slip and the man below was warned to crouch in a corner, as it would inevitably fall. The rock did fall, and the man in the pit miraculously escaped without injury, but he was taken out in a perfectly lifeless condition, and was exceedingly ill for more than a week.

Every army surgeon has frequently observed soldiers in approaching the battle-field, when within the sound of a musketry fire, exhibit an uncontrollable desire to evacuate the bladder and bowels. The apprehension of danger, and the uncertainty of the ultimate fate which awaits them, produces irregularity in the action of the heart and respiration, and relaxation of the sphincter muscles, in other words, a mild degree of shock. If wounded just at this time the shock is more pronounced than if it occurs during the heat of an engagement. When engaged fully in action, this feeling of dread soon passes away and is forgotten in the excitement of the battle, and now the severest wounds are received, and shock is deferred for hours, and not experienced until the stage of excitement has passed away. Then it is that the mind takes cognizance of the wound and its gravity, and shock rapidly supervenes. The higher nervous centers being preoccupied have contributed nothing to its production, and at the same time have held in abeyance and controlled the various reflexes, which the irritation of the nerves of sensation at the point of injury have started into activity. Hence shock is deferred. If it were possible to maintain for an indefinite period the mind in this state of control of the reflexes, we should be able to obviate the supervention of shock arising from physical injury.

In the severe injuries sometimes received by men while in a state of profound intoxication from alcohol, the shock is not marked, especially if they are made warm and comfortable, and stimulants are suddenly withdrawn. The effect of alcohol is similar to ether and chloroform,—the nervous centers, from the highest to the lowest, succumb to its influence in the same order of procession. During the state of profound intoxication, consciousness, sensation, and all the reflexes are temporarily held in abeyance, and it is impossible for a nervous impulse originating in any part of the brain, or the irritation of an afferent nerve, to be transmitted to the centers which are instrumental in the production of shock.

In injuries arising from accident, gunshot, and those which occur in the ordinary pursuits of life, it is not in our power to prevent the shock which subsequently follows, but much may be done to relieve it and thereby save life.

The chief indication in the treatment is to relieve promptly the embarrassment to the circulation, and, as this is owing mainly to undue stimulation of the vagi, remedies such as atropia and strychnia which have a sedative or paralyzing effect on these nerves have the happiest effect.

These drugs ought to be administered together hypodermically in doses of one one hundredth to one one-fiftieth grains, and at the same time external heat applied to maintain the warmth of the body. If the patient can swallow, whiskey or brandy should be given, hot, and but sparingly diluted, in order, as Lauder Brunton says, "to obtain its stimulating reflex action on the heart." The latter can frequently be stimulated into action by firm but intermittent pressure, by the end of the fingers, on the ribs immediately over it. The abdomen should be bandaged with a flannel roller, as it maintains warmth and by its pressure relieves somewhat the plethora of its blood-vessels.

There is much discrepancy of opinion in regard to the administration of morphine hypodermically just before the anæsthetic is given in cases requiring a surgical operation, and when deferred thus late, it is of questionable propriety. But it is of invaluable service not only in mitigating but in preventing in a large measure shock when administered in a proper manner and interval before the contemplated operation. The patient should be prepared and all information of the time of the operation should be withheld from him, and without arousing his suspicions, a hypodermic injection of morphine and atropia given in a sufficient dose to produce sound sleep, and while in this state, the anæsthetic should be cautiously administered so as to bring him completely under its influence without awaking him.

All the phenomena by which shock is manifested are the result of reflex action through the medulla and are caused by impulses originating in the great nervous centers of the brain. Any injury or irritation of the peripheral extremity of an afferent nerve must be propagated to these centers before it can reach the great center of reflex action. To prevent shock therefore, we must endeavor to avoid exciting any thought or emotion which may start these impulses from the great centers to the medulla and give rise to those disturbances which constitute its essence. When a patient undergoes preparation for a surgical operation and is told, even days before, of the time and place, and is borne into a modern operating room with all its paraphernalia of trays and knives, sponges and appliances for rendering a wound aseptic, and sees the preparations being made by surgeon, assistants and nurses, he must have a stout heart and be more than human to view what is taking place around him with stolid indifference and without fear and apprehension as to the final result. Before he receives the usual hypodermic of morphine, or the anæsthetic is administered, he is like the soldier approaching the battle-field, he is already suffering from a more or less mild form of shock. Add to this the stimulating effect on the vagal center of the primary action of the morphine, and if perchance the first cut of the surgeon's knife is made before he is fully under the influence of the anæsthetic, we have an additional inhibitory stimulus which may bring the heart to a standstill and death ensue. Whatever thought or emotion dominates the mind at the moment loss of consciousness occurs from sudden seizure of disease, a traumatism of the brain, or the effect of an anæsthetic, the same thought or emotion on the return of consciousness will still exert a controlling influence, and may give rise to a motor response, or diminish or increase the blood supply to some particular vascular area. If a thought or emotion powerful enough to excite reflex action occupies the mind as it passes under the influence of the anæsthetic, it will reappear in undiminished vigor as soon as intelligence resumes its sway.

On one occasion while conversing with a gentleman of more than ordinary intelligence, a president of a railroad, on a subject in which he was deeply interested, he was suddenly seized with an epileptic convulsion while speaking in the middle of a sentence. The fit was rather a severe one and was followed by coma which continued for twenty hours, and, happening to be sitting by the bed when consciousness returned, he finished the sentence which was interrupted by the fit. Some time ago I was called to see a man in a state of profound coma from a compound, depressed fracture of the right frontal bone near the median line, the wound having been inflicted during a quarrel by a small end of a monkey wrench in the hands of his antagonist. As soon as I trephined and removed a small button of bone which had penetrated the dura, and further had raised the depressed fracture, consciousness returned and the man resumed the quarrel.

Shock is sometimes not very pronounced

from the moment of the injury, yet persists for hours and days before full reaction finally takes place. While the artery at the wrist seems to be full enough it is weak and compressible, and the patient is in a state of somnolence, sleeping most of the time. The impression of the injury on the nervous system is more profound than the early symptoms would seem to indicate, until its recognition is forced upon us by some marked disturbance of nutrition. Apart from the destruction of tissues inflicted by the injury, shock through disturbance of the whole nervous system effects very serious changes in the nutrition of the body, and will cause diseased action in any part from slight irritation, and the skin is especially vulnerable in this respect. The pale and livid hue of the surface of the body is evidence of its nutrition. The blood which nourishes it being propelled by a weak and enfeebled heart flows with diminished velocity through arteries and arterioles of diminished calibre, and cannot convey the requisite amount of nourishment to the various tissues of the body. Hodgekin, as quoted by Erichson many years ago, in 1857, suggested that the condition was due to a chemical poison formed in the wound from innutrition of the injured tissues, and being absorbed into the circulation poisoned the system, in other words, was caused by a ptomaine. The real cause is owing probably to the presence of leucomaines which have been produced in excessive amount from general innutrition of all the tissues of the body from an inadequate supply of nourishment. The impaired vitality and lessened power of resistance of the skin to external irritants is marked and sometimes the death of a skin flap can be attributed solely to this cause. Hence, when a patient has received injuries which render an amputation imperative, and the shock has been persistent, the flap, including some muscle, should be the preferred method, as the small amount of muscle which it includes secures greater vascular supply.

In severe shock the presence of albumin in the urine can usually be detected. In the persistent forms it becomes a serious complication and retards the healing of any wound which may be present, or it may cause the system to succumb to septic influences. Albumin is not the direct result of a wound or injury to the tissues, but arises from the effect of the profound disturbance of the nervous system, which constitutes shock, on the organs chiefly concerned in eliminating effete matters from the body. It was a happy circumstance that the man who was removed from the pit in Cheraw in a helpless condition from shock was examined the previous evening by my friend Dr. Kollock for life insurance, and the urine tested for albumin and none found. A few hours after the accident the urine was again tested and albumin was so abundant as almost to solidify the contents of the tube.

Communications.

THE TREATMENT OF ANAL FISSURE, OR IRRITABLE ULCER OF THE RECTUM.*

By LEWIS H. ADLER, Jr., M. D.

There are some general rules that must always form a part of the treatment of anal fissure, to wit, to lessen as much as possible any inordinate action or distention of the bowel, and to prevent the ulcerated surface being irritated and abraded by the passage of hardened feces.

To fill these indications enemata or mild aperients should be employed, and the diet must be regulated, the use of bland and unirritating food being enjoined.

It is not possible to point out a diet that would be even generally applicable, as so much must depend upon the state of the constitution and the previous habits of the patient; but in general it should be moderate in quantity, yet sufficiently nutritious—what the stomach can digest with ease, and has no tendency to produce constipation.

The patient should be directed to take moderate exercise; and if the bowels are disposed to be costive, a daily evacuation should be secured by the administration of an enema of warm water, or one of rich flax-seed tea, say from half a pint to a pint, to be given every evening, preference being given to the night-time, as the patient can then assume the recumbent posture, which, combined with the rest, affords the greatest protection from subsequent pain.

Instead of the enema, or in conjunction

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with its use, the action of the bowels may be regulated by the employment of some mild aperient, such as the patient has found by experience to agree with him.

All drastic purges should be avoided, as they are more or less stimulating and irritating to the extremity of the rectum.

The pain and spasm of the sphincter muscles attending the evacuation of the bowels is best relieved by the use of a suppository consisting of:

℞—Ext. belladonnæ..... gr. ½ to ½
Cocain. hydrochlor..... gr. ¼ to ½
Ol. theobromæ..... gr. x.
Misce et ft. suppositoria j.

One suppository to be employed about half an hour before the enema is given, or a movement of the bowel is expected.

Instead of the suppository, an ointment of extract of conium may be used, as recommended by Mr. Harrison Cripps:[1]

℞—Ext. conii.. ..... 5ij.
Olei ricini.. ..... f 3iij.
Ung. lanolini.....q. s. ad 3ij.—M.

A small quantity of this ointment should be smeared over the parts five minutes before a passage, and again after it has occurred.

The various methods of treating anal fissure may be divided into the *palliative* and the *operative*.

Palliative Measures. — Palliative treatment will meet with success in cases in which the fissure is tolerably superficial and of somewhat recent origin, especially when there is no great hypertrophy of the sphincter muscles.

Allingham[2] states that the curability of the lesion does not depend upon the length of time that it has existed, but rather upon the pathological changes it has wrought. This same authority states that he has cured fissure of months' standing by means of local applications, when the ulcers were accompanied with polypi or hæmorrhoids, and when there was not marked spasm or thickening of the sphincters.

It is essential to the success of the treatment of fissure, especially by local applications, that rigid cleanliness of the parts be maintained: for this purpose the anus and the adjacent portions of the body should be carefully sponged night and morning, and after each stool, with hot or cold water, the temperature being regulated to suit the patient's comfort.

In applying the various local remedies it is necessary first to expose the ulcer to view, and to anæsthetize its surface with a 4 or 8 per cent. solution of cocaine hydrochlorate, well brushed in with a camel's-hair pencil.

The application may have to be repeated once or twice, at intervals of about five minutes, in order to obtain the desired anæsthetic affect.

If any ointment has been used about the fissure the anus should be subjected to a hot-water douche before using the cocaine, as cocaine will not exert its anæsthetic influence on a greasy surface.[1]

Among the different remedies that have been used in the local treatment of fissure of the anus may be mentioned the following: Nitrate of silver, acid nitrate of mercury, fuming nitric acid, carbolic acid, sulphate of copper, the actual cautery, and chloral hydrate.

Of these topical applications the nitrate of silver is the best. Its effects are various: it lessens or entirely calms the nervous irritation, which is so important a factor in producing spasmodic contraction of the sphincters; it coats and shields the raw and exposed mucous surface by forming an insoluble albuminate of silver; it destroys the hard and callous edge of the ulcer, and tends to remove the diseased and morbid action of the parts.

The form in which this salt is usually employed is in solution (from ten to thirty grains to the ounce). The caustic stick may be also used.

To accomplish the best results the solution should be used once in twenty-four or forty-eight hours, according to circumstances. It may be applied by means of cotton attached to a silver probe or to a piece of wood.

The application is made by separating the margins of the anal orifice with the thumb and index finger of the left hand, and introducing into the anus the probe charged with the solution. The argentic nitrate is to be applied to the fissure only; a few drops are all that is required. If thorough local anæsthesia has been induced by the use of cocaine, the application of the silver salt produces little, if any, suffering, for by the time that the anæsthetic has lost its effect the otherwise acute pain

1 Diseases of the Rectum and Anus, second edition, London, 1890, page 189.

2 Disease of the Rectum, fifth edition, London, 1889, p. 215.

1 W. P. Agnew, M. D.: Diagnosis and Treatment of Hæmorrhoids, etc., second edition, San Francisco, Cal. 1891, p. 91.

of the nitrate of silver will have passed away.

After each application the part should be smeared well with an ointment of iodoform (thirty grains to the ounce). The odor of that drug may be disguised by the addition of a few drops of attar of roses. Iodol may be used instead and in the same way, but I prefer the iodoform, owing to its anæsthetic qualities. After the ulcer has been touched once or twice with the silver solution the effect will be, in the cases that are benefited by this treatment, a considerable mitigation of the pain from which the patient suffered when at the closet and afterward, and the sore will present a healthy, granulating appearance, and will slowly contract in size.

Some authorities speak highly of the use of acid nitrate of mercury, fuming nitric acid, carbolic acid, the actual cautery, etc., but their employment, with the single exception of carbolic acid, is attended with more suffering than follows the use of the nitrate of silver or the simple operative treatment presently to be described. Furthermore, the application of these remedies is not so certain to effect a cure as either of the two procedures just mentioned.

The daily introduction of a full-sized bougie made of wax or tallow, will sometimes act beneficially in cases of fissure by stretching the sphincter and producing such an amount of irritation as will set up a healing process in the ulcer. An application of cocaine or of belladonna ointment should be made to the part previously to the employment of the bougie.

In children and young persons, unless a polypus or a polypoid growth, or a congential contraction, complicates the fissure, it is almost always curable without operation. In children suffering from hereditary syphilis, numerous small cracks around the anus are common, and they cause much pain. Mercurial applications and extreme cleanliness soon cure them, but they will return from time to time unless anti-syphilitic medicines be taken for a lengthened period. [1]

Operative Treatment.—If, after a fair trial of the simple measures that have been recommended, the fissure does not heal, or if, as described by Allingham, [2] the base of the ulcer be gray and hard, and if on passing the finger into the bowel the sphincter be found hypertrophied and spasmodically contracted, feeling, as it often does, like a strong india-rubber band with the upper edge sharply defined, or if there should be a polypoid growth, or any other complication, local treatment will not effect a cure and operative interference will be rendered necessary.

There are three methods of repute to be considered in this connection: incision, forcible dilatation, and a combination of these two procedures, viz., dilatation and incision.

Incision. A fissure can be cured by making an incision through the base of the ulcer and a little longer than the fissure itself, so as to sever all of the exposed nerve-filaments and muscular fibres along the floor of the ulcer. In a certain proportion of cases this operation will meet with success, but it is not so certain and radical as the third method to be described.

It has the advantage over the other two operations, however, of being nearly or entirely painless under local anæsthesia produced by cocaine, and, therefore, when general anæsthesia is contra-indicated, or is refused by the patient, this method is worthy of trial.

Forcible dilatation. This is the operation recommended by Recamier, of Paris; Van Buren, of New York, and others.

It consists of the introduction of the thumbs into the bowel, back to back, and then forcibly separating them from each other until the sides of the bowel can be stretched as far out as the tuberosities of the ischia. It is well to place the ball of one thumb over the fissure and that of the other directly opposite to it, in order to prevent the fissure from being torn through and the mucous membrane stripped off. As pointed out by Allingham, [3] it is well to repeat the stretching in other directions until the entire circumference of the anus has been gone over. In this manner, by careful and thorough kneading and pulling of the muscles the sphincters will be felt to give way, and will be rendered soft and pliable. This procedure should always be practised with the patient thoroughly under the influence of an anæsthetic, and it should occupy at least five or six minutes. The operation is a perfectly safe one, but as it is no less

1 Allingham, op. cit., p. 213.

2 Op. cit., p. 217.

3 Op. cit., p. 226.

severe than the method by incision, and as it fails to effect a cure in some cases, I can see no advantage in adopting it instead of the more satisfactory and always successful plan of treatment—combined dilatation and incision. It may be found preferable, however, in some cases on account of the prejudice of patients against the use of the knife.

Rapid forcible dilatation for the cure of fissure is a method now tried by some surgeons and *apparently* with a fair measure of success.

The patient is placed under the influence of nitrous oxide gas, and the sphincters are quickly stretched either by manual force or else with instrumental power. For my part, I do not see how a satisfactory dilatation can be accomplished in this way. When the cure of fissure by dilatation is attempted under ether-anæsthesia—the muscular system being completely relaxed—the thorough paralysis of the sphincters occupies several minutes before they are felt to yield, and the strain upon the operator's thumbs incident to the operation, becomes very tiresome to say the least.

With anæsthesia produced by nitrous oxide, we obtain a suspension of muscular action, but no general muscular relaxation; hence, to suspend the function of the sphincters to such a degree as to remove the cause which prevented the healing of the ulcer, viz., the constant motion of the muscular fibres, we must exert a force which would be both detrimental and dangerous to our patient's welfare. Therefore, I cannot believe that this plan of treatment will be commended by the conservative surgeon.

Dilatation and incision. This method I believe to be a radical and unfailing cure for anal fissure, if skilfully and carefully performed. The following are the details of the operation: The bowels should be thoroughly cleansed by the previous administration of a dose of castor oil and an injection; after which, under ether-anæsthesia, the sphincters should be dilated in the manner previously described. The resulting hyper-distension of the anus not only affords rest to the parts, by the temporary paralysis of the muscles, but also, as pointed out by Van Buren, it stretches the sensory nerves of the anus, so that they cease for the time being to convey impressions, the result of irritation, to the nerve fibres exposed in the floor of the ulcer; in the same way that we find forcible stretching of the sciatic and the sensory branches of the fifth nerve relieves neuralgia.

Mr. Charles B. Ball[1] states that this theory of the temporary cessation of the function of the sensory nerves following the hyperdistension of the bowel receives considerable support from the fact which is frequently observed, that the first time the bowels move after the dilatation there is entire immunity from the pain which before was so severe.

The first step in the operation being accomplished—the dilatation of the sphincter—it will enable us to obtain a complete view of the lower end of the rectum and the exact limits of the ulcer. The fissure is now kept exposed by the fingers of the left hand, and a probe-pointed bistoury is drawn through its base, from within outward so as to incise the subjacent muscular fibres at right angles to their course. It is well to begin the incision a little above, and to end it a little below the ulcer, so as to insure its being carried quite through the sore.

Another method is that advocated by Mr. Syme, and is performed by transfixing the ulcer beneath its base with a small, sharp-pointed, curved bistoury, and cutting from without inward. This procedure endangers wounding the opposite side of the bowel unless it is protected.

The subcutaneous division of the sphincter, as recommended by some authorities, is not a satisfactory method, and is mentioned solely for the purpose of condemnation. It is not only uncertain in its results, but it is also painful, and in more than one instance has been followed by abscesses.

In cases in which the fissure is situated in the median line of the rectum, either anteriorly or posteriorly, care should be observed in making the incision, for the reason that wounds toward the coccyx split and separate the fibres of the external sphincter only, and are difficult to heal, while anatomical considerations will deter us from using the knife freely anteriorly: in the male from the bulb of the urethra being in close proximity, and in the female the shortness of the perineum, and the knowledge that division of the anterior fibres of the sphincter in women is

1 The Rectum and Anus, p. 136.

so frequently followed by incontinence of feces[2]

After any of these the patient should keep the recumbent position, and it is better to confine the bowels with opium, at least for the first forty-eight hours. After three or four days a laxative, followed by an enema, may be given, from which time daily alvine movements should be secured. In seven or eight days the patient can begin to move about, but for at least two weeks he should avoid standing too long on the feet. No dressing is required, except a small quantity of iodoform, which should be dusted over the ulcer, and the parts should be bathed well with warm carbolized water, night and morning, to remove offensive discharges.

Peroxide of hydrogen (Marchand's) may be used instead of the carbolized water.

In the majority of cases of fissure, healing progresses with great rapidity, but occasionally, after the wound has healed to a certain extent, healthy action stops, and the appearances of an anal ulcer are again produced. Should this occur, it will generally be found that some complication has been overlooked, such as a fistulous passage running from the ulcer beneath the mucous membrane of the bowels. The presence of such a passage might be suspected, if the discharge from the part is out of proportion to the size of the ulceration.[3]

Another complication consists of a small hypertrophied tag of membrane, or polypoid growth, situated at the base of the fissure, or on some other portion of the rectal wall.

The removal of these complications will aid the patient's recovery.

Society Reports.

LOUISVILLE CLINICAL SOCIETY.

Stated Meeting of Nov. 1st, 1892.

THE PRESIDENT, Dr. P. G. Guntermann, in the Chair.

PERITONITIS IN CHILDREN—CASES.

DR. J. A. OUCHTERLONY: I will mention a case that I have on hand at present which may become the subject of a laparotomy: A little girl ten years of age was perfectly well on Friday week ago. She went out to witness the parade which took place the evening of that day, and stood a long time on the damp ground; she experienced no unpleasant effects or unpleasant sensations of any kind that night, but the next evening, twenty-four hours afterward, she was suddenly seized with cramps and diarrhœa and had what seemed to be from the mother's account, an attack of acute intestinal catarrh. Sunday afternoon I was sent for, but being absent from the city, did not reach there until in the evening, when I found the child with rather profuse diarrhœa and slight fever, temperature 101° F. Under opium and bismuth she improved, but the fever did not go down, and since then the abdomen has become tumid and somewhat tender, the tenderness being more in the hypogastric region than anywhere else. She has a number of symptoms of peritonitis, but the bowels are freely open and the temperature is is not very high. She has no appetite and suffers a great deal from this tympanitic distension and tenderness; has a very high pulse, varying from 120 to 140 at times, and the question in my mind was, is that a case which would require or justify a laparotomy. The case has lasted ten days fully. There is evidently no obstruction; no vomiting; but the abdomen is characteristic of peritonitis; there is tenderness; there is dorsal decubitus; thoracic breathing; and while the temperature is not very high, there is that rapid small pulse which is so characteristic of peritoneal inflammation.

DR. A. M. VANCE: Do you think it could possibly be tuberculous trouble?

DR. J. A. OUCHTERLONY: There is no history of tuberculosis in the family either on the father's and mother's side, and the child was taken sick suddenly with acute symptoms. While she has not been narcotized by opium, it has been necessary to give it in order to relieve the pain.

DR. A. M. VANCE: Are the kidneys acting all right?

DR. A. J. OUCHTERLONY: She passes urine copiously.

DR. L. S. MCMURTRY: Does she seem to be growing better or growing worse?

DR. J. A. OUCHTERLONY: What little change there is, is for the better; pulse somewhat better, abdomen may be slightly

2 T. J. Ashton: Diseases, Injuries, and Malformations of the Rectum and Anus, etc., second American from the fourth English edition, 1865, pp. 49, 50.

3 Mr. Harrison Cripps; op. cit., p. 190.

less tense. Her expression is not that of peritonitis.

Dr. A. M. Vance; Did you find any worms?

Dr. J. A. Ouchterlony: No. She has had so much diarrhœa that if she had any worms they surely would have have been dislodged by this time.

Dr. A. M. Vance: It is certainly a very interesting case, and also a puzzling one. While the specific cause of this trouble cannot be located, I think there is one point about it:—If surgery is determined upon, an operation should be performed before it is done as a *dernier* resort, and in this way give the patient better chance of recovery from the surgery. I think oftentimes the patient's friends will only consent to having the abdomen opened in cases of this kind when it is too late to have any power left, on the part of the patient, to recover. I cannot imagine what the cause is, but it seems to me that it must be peritoneal trouble.

Dr. J. A. Ouchterlony: I felt that the necessity for a laparotomy might arise at any moment, and was deliberating in my own mind whether it was justifiable at the present time.

Dr. M. S. McMurtry: One anomalous feature the case presents is, that there is peritonitis and active diarrhœa at the same time opium is being administered. Peritonitis is nearly always benefited by diarrhœa, and it seems in this case like Nature was exerting herself in that direction to drain the peritoneum. Another feature is that we ought to be more cautious in deciding upon operative interference in cases of peritonitis in young subjects, than otherwise. It certainly would be a very nice point to know just what to do, and I think perhaps we have more responsibility in deciding when to interfere in the young subject than any other. I believe the course being pursued by Dr. Ouchterlony is the judicious one; that is, as long as the pulse is within a safe limit; as long as the child is well nourished and there is no evidence of obstruction, to watch the case closely and hold himself in readiness to interfere if there is any aggravation of the symptoms, or evidences of obstruction.

Dr. W. C. Dugan: One thing against peritonitis in this case, is that it began with diarrhœa: This seems to have been the initial symptom, rather than one which set up afterward. I am quite sure there is some peritonitis, but secondary to entero-colitis. The case may become one of appendicitis; one symptom, persistent pain, rather bears out the pathology of appendicitis, and it is probable there is a state of catarrhal appendicitis along with the general trouble in the intestines.

Dr. J. M. Krim: I saw for the first time to-night a case similar to the one reported by Dr. Ouchterlony, except that possibly in this case the trouble is due to impaction. A little girl about five years of age with several of her playmates ate a large quantity of walnuts last Sunday; at the time she was feeling perfectly well, and continued so all day yesterday, (Monday.) To-day the child began to vomit; has had no action of the bowels since Sunday; the mother gave her some castor oil and finally resorted to enema, without any result; the vomiting continued and when I saw her to-night the abdomen was apparently distended and very painful, particularly on the right side; she draws up the leg on that side so as to make her feel comfortable; temperature 102° F.

Dr. T. P. Satterwhite: Was there any induration or hardness in the right iliac region?

Dr. J. M. Krim: There seemed to be a little induration in the right side, but it may simply be an impaction of the nut in that region. Vomiting has not been stercoraceous at any time, simply substances which she has swallowed. I used the rectal tube, injecting about a pint and a-half of water.

Dr. A. M. Vance: It sounds more like a case of appendicitis than anything else.

Dr. L. S. McMurtry: In my opinion the trouble is most probably due to impaction, although it may be appendicitis.

Dr. W. C. Dugan: I would suspect appendicitis in this case owing to the localized tenderness, and tendency to favor that side, drawing the leg up, etc. I think the case is one that should be carefully watched.

AN EXPERIENCE WITH INTUBATION.

Dr. T. C. Evans: I had rather a novel experience about three weeks ago, in a case of intubation; patient, a child not quite three years old. Upon my arrival found the patient very cyanotic; the operation had been delayed until the last moment. I attempted to introduce a

tube used usually for patients three years of age, using the new O'Dwyer tube with double swell, but found I could not pass it without undue force and concluded to withdraw the instrument and insert a smaller tube. I withdrew the instrument and to my surprise the child ceased breathing. I had the Doctor in charge keep up artificial respiration while I was trying to screw on a smaller sized tube, but as the tube was a new one I found its obturator had a different thread from the screw on the applicator, so I had to go back to the three year old tube; meantime the child had not taken a respiration; had had a convulsion; the features relaxed; the jaw dropped and it was to all appearances dead. I introduced the larger sized tube, pushing it into the larnyx regardless of the apparent obstruction, and still the child would not breathe, and had no pulse. Artificial respiration did not seem to do any good, and I concluded to inflate the lungs by blowing in its mouth, which was very easily and quickly accomplished. After four or five inflations the child began breathing regularly. I found, however, that I had not only inflated the lungs, but had also inflated the stomach, and intestines as far as the large intestine, making the abdomen very prominent and tympanitic. A few minutes after the child was resuscitated, the air from the alimentary tract commenced passing off per rectum, and gave no further trouble. The after history of the case was that I removed the tube on the sixth day and had to re-insert it, no membrane coming away and the child had expectorated very little. On the tenth day I removed the tube again, when considerable membrane was thrown off. Dyspnœa returning I had to again re-insert it. On the fifteenth day I took out the tube. The patient is making an excellent recovery. I never saw a case before where the membrane was retained so long.

DR. WM. CHEATHAM: I have nothing to say in regard to the case, except to congratulate Dr. Evans on the result. I had a patient wear a tube nineteen days and get well.

INTRA-ABDOMINAL ABSCESS.

DR. A. M. VANCE: I was called by Dr. H. Goodman to see a lady fifty-two years of age, who had been sick with continual fever six and one-half weeks. She was taken ill suddenly at night and when the Doctor was called he found she had a sub-normal temperature. In twelve hours the temperature went up to 106 ½° F. Large doses of antipyretics were administered without any abeyance of the fever, so far as returning to normal temperature was concerned; it was reduced to 103° F., never going below 101° F. A few days before I saw the patient tenderness had developed in the left side, just in the loin. She was a very large woman, weighing at least four-hundred pounds; there was so much adipose tissue that nothing could be found by palpation except a slight flinching on deep pressure in the left loin. Following this high temperature she had three rigors. I determined that there must be an inflammatory process somewhere, and taking this tender part as my only guide, I made an exploration with a very long aspirator needle and found pus in the region around the kidney, and I determined to go after the pus the next day by the knife. I cut through about six inches of tissue and came to a cavity which was evidently near the kidney, and evacuated about a quart of very offensive pus, making the incision in the ilio-costal space. She was decidedly the largest person I have ever operated on, and the difficulties encountered from this amount of fat were great, as you could hardly tell where you were going, and it was impossible to get the patient in any position of advantage. I inserted two large drainage tubes, fully ten inches in length; washed out the cavity daily for four or five days, until pus ceased to flow in any quantity, and then removed the tubes because I could not get the proper gravity while they were inserted. She has done uninterruptedly well since the operation, the fever disappearing at once. She has had no interference of the renal secretions at any time.

DR. L. S. MCMURTRY: I do not know that any remarks can be made, except to state that the case was very excellently conducted, as the results show.

STENOSIS OF THE LARYNX.

DR. WM. CHEATHAM: I saw a case about two and a half weeks ago with a history of stenosis of the larynx, which has been progressing for about six months, coming on gradually. The patient is a

child about two years and eleven months old. At that age we cannot make a laryngoscopic examination. I found no difficulty in introducing a tube beyond the stenosis, which entirely relieved the breathing. The tube was put in two weeks ago last Friday; I took it out yesterday, but had to re-insert it. I look upon the case as one of papilloma of the larynx, and probably will have to eventually open the larynx and remove the growth. There is no history of any specific trouble. I see Dr. Waxam reports a case in which a child wore a tube four years, and finally got well.

CASES OF COMPOUND FRACTURES.

DR. W. O. ROBERTS: I had several cases of compound fractures that I intended to exhibit this evening, but for some reason only one of the patients has put in an appearance. They were all cases of very severe fractures with good results.

This is a man twenty six years old who works in a flouring mill, and who eight weeks ago had his forearm caught in the machinery. There were extensive contusion and laceration of the soft structures, and the bone was broken in a number of places. There were two wounds in the skin, one on the posterior surface extending from the elbow joint downwards for four inches, and one two inches long on the palmar surface. The arm was put up antiseptically and the wounds stuffed with iodoform gauze. Wounds healed without suppuration. I think he will have a very useful arm; you will observe there is very good motion both in the arm and fingers.

One of the other cases was a man fifty-five years of age, who had a compound Pott's fracture. The whole side of his leg was badly lacerated, and about four inches of the large bone protruded and stuck in the mud. I cleansed it as well as possible, cleansed the wound out thoroughly and put it up in the same manner as the first case reported, and the man has made an excellent recovery.

The third case was a compound fracture of both legs, occurring between the ankle and the knee. All of these cases have gotten along without any trouble, and they were all cases that I am satisfied would have been subjected to amputation before the introduction of antiseptic surgery.

DR. W. C. DUGAN: Do you expect complete flexion in the case exhibited?

DR. W. O. ROBERTS: No, I hardly hope for complete flexion.

DR. W. C. DUGAN: The possibilities of asepsis in compound fractures is one of the greatest achievements of modern surgery. Many of you can recall a time when these lesions were looked upon as almost necessarily fatal. The surgeon felt when called to these cases that a calamity had befallen him. Since the introduction of aseptic surgery, these cases are sought after by the surgeons and the results are almost as favorable, if not quite, as simple fractures.

One word in regard to the use of gauze instead of drainage tubes: I believe gauze is far superior to tubes and should be used in all cases where it is possible to do so. I think in Dr. Vance's case it would have been better to have employed gauze instead of drainage tubes. I do not think there is anything equal to it.

I asked Dr. Roberts if he expected complete flexion for the reason that the upper end of the radius is dislocated anteriorly. This is a common complication. I should like to suggest that if complete flexion is very important, excision of the head of the dislocated bone above the bicipital tubercule.

DR. L. S. MCMURTRY: Do you think gauze will drain away anything but serum?

DR. W. C. DUGAN: I do, I have used it often and with the most satisfactory result.

DR. W. O. ROBERTS: I did the operation referred to by Dr. Dugan in an old case of anterior dislocation of the radius some time ago, with excellent results.

DR. A. M. VANCE: We can hardly hope to get the best results outside of the hospitals and infirmaries, until we educate the people concerning the value of asepsis and antiseptic dressings. I think this is a point that we all ought to make with the people, as it is an important element in our work. We should endeavor to educate the people so that when we apply our dressings, they will know how to conduct the case in our absence in a manner to produce the best results. I know I have had cases injured by meddlesome interference on part of the family changing the dressings, washing them off, putting on vinegar, turpentine, etc.

SUPPURATIVE OVARIAN CYST.

DR. W. C. DUGAN: I desire to report a rather interesting case I saw recently in Southern Indiana: The patient, a woman about thirty-two years of age, had a tumor of eleven years' standing in the left side; she was a delicate woman. She noticed this tumor after the birth of her first child. The tumor was then small and movable. As she changed position the tumor would move from side to side. It gave her little or no trouble up to about eleven months ago, when she was delivered the second time. She noticed that the tumor during this pregnancy had increased considerably in size, and differing from its former condition in that it had become fixed during the pregnancy. She suffered no great inconvenience from the tumor up to four weeks ago, when one morning she was taken with a severe chill followed by considerable febrile reaction. She had a number of chills every day, and considerable fever. The physician who attended her stated her temperature was 103½° F., pulse 120; she was very feeble; lost flesh rapidly, being unable to take any nourishment, and vomited continuously. She had diarrhœa a good deal of the time. When I was called to see her, she was comparatively easy; had not had a chill for three or four days; temperature 102½° F., pulse rapid and feeble. She was very much reduced, weighing not to exceed seventy pounds, her natural weight being about 150 pounds. Considering the fact that she had chills and high fever, and sudden subsidence of pain, I took it there was a pus formation; did not think there was any doubt about it. If it was an ovarian cyst, we had the formation of pus in the sac demanding operation. When I saw her, pulse was 130, and hardly perceptible at the wrist; expression of the face anxious and haggard. She had that peculiar cachexia that all of us have often seen in cancers. She was told of the dangers of operation, and of the few chances she had of recovery. She said she wanted to be operated upon. She was put upon the table and an incision made in the left semi-lunaris. The peritoneum was found to be very much thickened and closely bound to the tumor, so I simply passed on into the cavity of the tumor and opened an abscess letting out a large quantity of very thick pus and broken down tissue. After evacuating the pus I washed out the cavity and started on one side to find how closely it was attached, and found it was adherent to almost everything in that region. I decided it was best to simply stitch the wall of this old cyst to the abdominal wall and tampon it which was accomplished in a short time, iodoform gauze being used to fill the cyst. The patient was taken off the table with hardly any pulse at all. I left her that evening. Her physician, a most excellent practitioner, agreed to see the case and remove the gauze the next morning and put in fresh gauze, and change the dressings every day. I heard from her two or three days afterward, temperature had dropped to normal, pulse to 95; she was able to take nourishment and retain it, and was doing well. I believe if I had attempted to remove the tumor, she would have died on the table. It was one of those cases of suppurative ovarian cyst, adherent to everything, so I simply stopped half way.

The point I want to call attention to in particular is the subsidence of pain when pus forms. I do not think this is fully appreciated by men who are not working in this line.

DR. A. M. VANCE: I remember assisting Dr. Cecil in an ovariotomy at the St. Mary and Elizabeth Hospital, tumor weighing twenty-five to thirty pounds, in which there was pus formation in an ovarian cyst, without any fever. It was a cold abscess, with no adhesions; the woman made a good recovery.

DR. L. S. MCMURTRY: I think in these cases of suppurative ovarian cyst, the most common cause of the suppuration is a twisted pedicle. I have met with two such cases in the last month. When the pedicle becomes sufficiently turned to arrest the circulation in the tumor, it is very liable to undergo suppurative change.

DR. W. O. ROBERTS: I should think had it been a twisted pedicle, there would have been gangrene of the tumor. I have seen one case of the kind.

DR. W. C. DUGAN: In regard to twisted pedicle:—Of course that was the first thing I suspected, but the adhesions were certainly of such long standing that it precludes the possibility of the pedicle being twisted. And, too, there was no indication of any interference in its circula-

tion, which would have existed had the pedicle been twisted.

DR. J. A. OUCHTERLONY: The subject of laparotomy brings up a question upon which I would like to ask some information: In cases of perforation in typhoid fever, of course the only hope practically speaking, for the patient is to perform a laparotomy and excise the ulcerated portion and sew up the gut. I know it has been done, but do not know anything about the success that has attended this procedure. I would like to know if any of the gentlemen in the society have any information on the subject.

DR. L. S. MCMURTRY: I believe Morton, of Philadelphia, has collected a series of all the cases he could hear of, and has done the operation several times himself—none of them successful.

Correspondence.

THE AMERICAN "CROWBAR AND SKULL CASE."

A correspondent of the MEDICAL AND SURGICAL REPORTER writes us: While in Boston last summer I saw this skull and bar, and made the enclosed hasty sketch. An article in Stone (*Vol. V., p. 493, 1892*), giving an account of the wonderful accident, prompts a description of this case which has gone on record as the most remarkable in the annals of physiology and surgery, while prominent physiologists are still unable to explain how the thing could have happened without causing death.

Phineas Gage aged twenty-five years, a native of Lebanon, N. H., was foreman of a gang of men, who were employed in blasting rock at Cavendish, Vt. Gage had never had a day's illness from childhood, and was as far as could be determined, perfectly healthy.

At the time of the accident, on Sept. 13, 1848, he was charging a drill hole for blasting and sat on a shelf of rock just above, but a trifle to the right of the hole, as he faced it. The powder and fuse were in position and he was in the act of tamping it in. He turned his head for an instant to look at his men at work behind him. His iron struck fire on the edge of the hole, an explosion followed and the tamping bar, 3 feet 7 inches long, ¼ inch at the small end, about 1¼ inches at the large end, weighing about fourteen pounds, was projected upward obliquely in the line of its axis, passing completely through his head and high into the air, falling several rods behind him, and was afterward picked up by one of the men, covered with blood and particles of brain. The man was thrown upon his back by the force of the blow and his extremities moved convulsively a few times, but he spoke in a few minutes. His men carried him to the road a short distance away and he rode home in an ox cart sitting up by being supported. When he arrived at his destination he got out of the cart himself with a little assistance, and an hour afterward walked up stairs with a little aid and laid down upon the bed where his wound was dressed. He was conscious but very weak from loss of blood.

The examination of the wound showed that the iron entered the left side of the face by the pointed end, immediately anterior to the angle of the lower jaw, passed obliquely backward, emerging in the median line, back of the frontal bone, near the coronal suture. The bones were broken in small fragments and forced upward and outward. The hole had much the shape of an inverted funnel, the edges of the scalp everted and the frontal bone badly fractured, leaving an irregular oblong opening in the skull 2 inches one way and 3½ the other, through which the pulsations of the brain were distinctly seen and felt.

The wound was dressed and the man showed no apparent signs of serious injury excepting a curious agitation of the legs, which were alternately retracted and extended. Then began a battle, the natural consequences of such an accident against the strong constitution of a healthy man. No one thought it possible that he could recover, but after a few days he began to improve and the fifty-sixth day from the accident the patient was up and walking

about the house and piazza. The sixty-fourth day he caught cold and serious consequences were, for a time, feared, but he recovered. Ten days afterward he was taken in a carriage and driven to Lebanon, N. H., a distance of thirty miles or more.

Gage passed the winter months in Lebanon, but returned to Cavendish the following April, carrying his iron with him. He was then in good health and flesh, but in his mind was weak and childish, and the sight of the left eye was entirely lost. He visited South America, passed some time in Valparaiso, then went to San Francisco, where his mother had moved. He died there of epilepsy, May 21, 1861, nearly thirteen years after the accident. The skull and iron are now in the museum of the medical department of Harvard University, and the illustration given herewith, shows the track of the iron through the skull.

ERYSIPELAS.

The mechanical treatment of erysipelas by means of strips of adhesive plaster is recommended afresh, by Wolffler (of Graz). This is applicable not only to the extremities, but also to the trunk, to the face, and hairy scalp (after shaving), and in its application makes a wall, obstructing the advance of the erysipelatous infection. Great care must be taken that the strips are so adjusted as to make a complete ring, and that the last applied do not relax the first put in position. To avoid relapses they must not be removed for at least four or five days after subsidence of fever and disappearance of the flush.

The statistics given by Wolffler seem very favorable, and the results are especially noticeable in the treatment of the facial cases. The cases of erysipelas in the lower extremities seemed to resist this method most stubbornly, which is also true of their resistance to the operative treatment proposed by Kraske and Riedel.

Should the treatment by plaster strips fail in these cases, we recommend the crisafication method.

Kroll (of Strassburg) adopts the same principle, but secures the end by the elastic compression of broad bands of rubber.

Gottstein (of Berlin) recommends that a one per cent. sublimate ointment, using lanolin for the base, be applied in thick layers twice daily, over all the erysipelatous and neighboring sound tissue. Over this a cotton dressing is applied.

Winckler (Bremen) advocates the treatment with oil of turpentine as suggested by Lucke. Several times a day (four or five times in very severe cases), the affected parts were well rubbed with oil of turpentine, using a brush, or wad of cotton.

Before the first application, thorough cleaning of the skin with ether, or absolute alcohol is advised. To avoid any dislodgement and dispersing of the germs, the friction should be made in the direction from the edge of the erysipelatous portion of skin toward the center. Over the diseased portion a cotton dressing is applied, and the application is renewed in from two, three, or four hours, according to the severity of the case.

The suspected point of entrance of the infection must be disinfected as thoroughly as possible, small ulcers cleaned of adhering crusts and covered with sublimate lanolin (one per cent.). Inasmuch as the use of turpentine is contra-indicated in cases complicated by albuminuria, the urine must always be examined before this treatment is entered upon.

Ichthyol, applied by von Nussbaum and Fersher in the Munich hospital, has been warmly recommended from every side; it is claimed to be a direct specific against erysipelas, which lessens the intensity of the disease and shortens its duration very materially.

It is usually applied as a salve (Ichthyol, Vaseline aa; or Ichthyol, Aq. dest., Lanolin aa,) two or three times daily on the erysipelatous skin, which has been thoroughly scrubbed with soap and water. Over this is laid a salicylated dressing and cotton. It is very important that the application be made not only on the actively inflamed skin, but also well out on the sound portion adjoining, and to continue it a day or two after the fall of temperature. * *

Ullrich (*Hosp. Tidende*) prescribes as follows:

℞ Ammon Sulpho ichthyol.....3 ss.
Ether Sulph.....3 ss.
Collod Elast.....3 i
Mix.

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Medical and Surgical Reporter

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THE MEDICAL AND SURGICAL REPORTER.

SATURDAY, DECEMBER, 10TH, 1892.

THE HYDRIATRIC TREATMENT OF TYPHOID FEVER.

It is taught in the schools and accepted by the profession that, generally speaking, 70 per cent. of all cases of Typhoid fever recover without treatment; about 15 per cent. will die with or without treatment and the remaining per cent. are debatable and treatment may decide the issue of life or death.

The treatment of the disease by cold water baths has made but slow progress in this country. A heroic measure, violating preconceived notions of proper treatment, apparently impracticable in private practice, it has been compelled to prove its merits beyond question.

The method of Brand consists in the following systematic procedure:

Whenever the temperature taken in the rectum reaches 102.2°F. (39°C.) the patient is placed in a bath of 65°F. A compress, wet with water about five degrees lower, is placed upon the head, or water at a lower temperature is poured upon the head and shoulders. The patient remains in the bath fifteen minutes, during which time he is systematically rubbed by the attendants and encouraged to rub himself. At the expiration of that time he is removed from the bath, and wrapped in a coarse linen sheet, over which a blanket is folded, the extremities being thoroughly dried and rubbed. A little wine or spirits is then given. This is repeated every three hours, unless the temperature remains below 102.2°F. The alimentation is liquid, nutritious, and carefully regulated. No drugs are administered.

The most recent report of its efficacy in hospital practice is given by Dr. J. C. Wilson (*Med. News*, Nov. 26, '92). In the service of the German Hospital the total number of cases treated by this method to June 1, 1892, is 226; the total deaths, 12—5.3 per cent. In the entire series of 226 cases relapses occurred in 19 instances; more than 1 relapse occurred in 2 cases.

The statistics of the German Hospital now rest on a sufficient number of cases and extend over time enough to warrant conclusions as to the efficiency of the treatment in an American hospital. It has reduced the death-rate in this institution nearly 50 per cent. from the best showing of previous years, and 66 per cent. from the most favorable statistics of the hospitals of the city under other methods.

It is the custom at the German Hospital to administer to the patient upon admission, if before the 10th day, a laxative dose of calomel, from gr. vijss-x, and in cases entering the hospital during the first week this dose is very often repeated; otherwise,

the management of the cases in almost all instances conforms strictly to the method of Brand.

Such results enforce their own lessons. If it will do so much in hospital practice it will also improve results in private work. If convinced of its positive value the American practitioner will allow nothing to prevent its use in private work.

Translations.*

By MARIE B. WERNER.

Dr. v. Velits presents a study on Osteomalacia and its Treatment with a Report of Two Cases, (*Zeitschs. f. Geburts. und Gynaek.*, bd 23, Heft. 2). The studies of Litzman and Hennig, published in 1861, proved that 80 per cent. suffering from this disease proved fatal. Porro's operation performed in such cases always being followed by an arrest of the softening processes induced Fehling, in 1882, to conclude that simple castration might be followed by a cure of this disease. Sänger, although opposed to the Porro operation, also stated in 1884, that the removal of the uterus and its adnexa, usually brought about a cure of osteomalacia. Baumann, in 1889, collected a series of 44 Porro operations with 24 recoveries, all of which were also cured of osteomalacia. Of 12 conservative Cæsarean only 2 were finally cured. Fehling reported in 1890, at the International Congress, the results of his studies and presented as characteristics of this disease: 1st. Menstruation aggravates the disease. 2d. Pain in the affected parts is at once relieved by an operation. 3d. The blood vessels were found enlarged in the organs removed, possibly pointing toward the cause. The ovaries show no marked change in their stroma. 4th. Fertility is increased, pointing perhaps to an increased functional activity of the ovaries.

Fehling, therefore, concludes that the cause may be sought in the ovaries—their pathological condition influencing reflexly the vaso-dilators of the blood vessels in the bone.

v. Velits has found that it attacks all classes alike, either rich or poor, is uninfluenced by lactation and not always induced by pregnancy, since virgins have suffered from it. This latter is substantiated by Fehling who saw a case in a virgin, and Fruzzi who reports a case of 3 years' standing in a virgin of 34 years, similar observations have been made by Henning, Michnow, Hofmeier, and Thorn. In two of the five cases seen in virgins, the uterine appendages were removed, resulting in a cure in both. In Fehling's last communication he presented a list of 20 cases collected by him, which were treated surgically and cured. The author adds to this number, 1 by Hofmeier, 1 by Lihotzky, 2 by K. Braun, and 1 by Thorn; 2 by the author himself make in all 27 cures of osteomalacia by the removal of the uterine adnexa, on record.

The author agrees with Fehling that fertility is increased in those suffering from this disease, but his microscopical studies of the ovaries removed failed to show any abnormal enlargement of their blood-vessels.

Aside from those cured the author has two other cases under observation, which he intends to report later and also gives a synopsis of 4 cases found in the hospital records from 1864 to present date:

1. 1872, Primipara, æt. 41. Contracted pelvis due to osteomalacia, rupture of the uterus, escape of the fetus into the abdomen. Death followed shortly after section.

2. 1877, Primipara, æt 18, illness dating back to the 3d month in pregnancy. Osteomalacia, spontaneous expulsion of the fetus at the end of term—died from sepsis.

3. 1881, Multipara (4) æt. 34. Desired admission to hospital during 5th month of pregnancy, osteomalacia, premature induction of labor. Male, living child, gradual improvement after the puerperal period. 1885, she was again able to go without crutches. 1886, she conceived again, all the former symptoms of osteomalacia returned in a more aggravated form, permature induction of labor. Male child, died soon after birth, the patient again improved.

4. 1890, Multipara (7) æt. 31. The first 5 labors were normal. The sixth was a forceps delivery. Symptoms of osteomalacia set in during the sixth pregnancy, The pelvis was so soft and distended as to permit the seventh labor to be an easy one.

*Translated for MEDICAL AND SURGICAL REPORTER.

The author found it interesting to study location as a factor in the cases, and has concluded that in the western and northwestern part of Hungary, the greatest number of cases have been found, especially, however, upon the Island of Shütt.

M. Runge, gives the following interesting reports from the Göttingen Frauenklinik (*Archiv. f. Gyn.*, bd 41). First patient, pregnancy complicated with a congenitally displaced kidney and an ovarian tumor, ovariotomy in the fifth month; artificial induction of labor, and delivery in the seventh month; both mother and child survived. This is the fourth case of congenital displacement of the kidney as a complication to labor. In two, section was performed, the kidney was found adherent to the upper border of the sacrum, having in this position effectually obstructed the normal course of labor and made the premature induction of labor an urgent necessity.

Second. Pregnancy in the presence of complete closure of the uterine os following amputation of the neck for epithelioma and repeated subsequent applications of the hot iron. Crucial incisions in the cicatricial tissue failed however, to give sufficient space to effect delivery, there being danger of rupture of the uterus, craniotomy was resorted to, especially since the heart sounds of the fetus had become weaker and diminished in frequency. Normal puerperium.

Third. Placenta previa totalis. Child fully developed. Version by the combined method, death from acute anæmia.

Fourth. Osteomalacia. Porro operation, intra-peritoneal treatment of the stump. Complete recovery, patient æt 45, ninth pregnancy; the first symptoms of osteomalacia appeared during the third pregnancy. Forceps delivery of the seventh child. Craniotomy on the eighth.

Fifth. Operation on a child of 16 hours for congenital umbilical hernia. The hernial sac contained some intestinal loops and a portion of the liver; the tumor was about the size of a lemon—reposition proved impossible, the incision through the integument was made about 1 cm. from the insertion of the amnion, then came circularly around the swelling, the sac carefully opened, the liver freed from its peritoneal adhesions, the wound closed with silver sutures. The child recovered.

A. Schmidt presents an interesting report of 9 cases for radical cure of hernia (after the method of C. Schwalbe (*Deutsch Zeitschr. f. Churg*, bd. 24).

Schwalbe's method of cure by means of injections of alcohol into the sac after the reduction of the hernia, had in the author's opinion, never received the attention it deserved. (Schwalbe reported 1000 with but one death, which was not directly due to the method).

The technique consists in first securing an aseptic field for operation, by thoroughly cleansing the parts. The needle is thoroughly sterilized, the hernia having been reduced, the left index finger is placed into the abdominal ring, thus enabling the operator to guide the needle into the canal. One to 2 c. c. are injected at one time; the first solution is 50 per cent. which may be increased gradually to 80 per cent., but must never exceed this latter.

The number of injections differ with each individual case. The alcohol produces localized inflammation which aids in closing the canal.

To establish a cure both patient and physician are recommended to exercise patience, the time may extend over three months. In femoral and inguinal hernia, Schwalbe advises strongly that the patients remain in bed the first three or four weeks no truss being allowed. Umbilical herniæ can be treated at the office, the opening made by the needle is closed by adhesive plaster.

Children are usually anæsthetized before the injection is made. Complications sometimes met with are enumerated as follows: Some injected fluid passing through the open sac into the peritoneum may give rise to acute pains for several hours, or the needle may wound the spermatic cord, which would produce a transient acute hydrocele.

The author's personal experience with this method consists of nine case—six umbilical hernæ, 3 in adults and 3 in children; 3 inguinal hernæ, 1 adult, 2 in children. A complete failure was met in a fat man having a large scrotal hernia. An umbilical hernia in a healthy man was improved but treatment was unfortunately interrupted. The remaining cases were all cured and the time since treatment ranges from 3 months to 7 years. These results were the author's incentive for call-

ing upon the attention of the general practitioner.

Abstracts.

A case of snake bite treated by hypodermic injections of strychnia, ending in recovery is reported in the October number of *The Indian Medical Gazette* by Surgeon-General Cadge and Surgeon Captain Pratt. A Hindoo boy, æt. twelve, was seen half an hour after having received a bite from a cobra in the great toe of the left foot. The only symptoms present were pain, tingling and numbness in the left foot; the body was cold; and the child seemed drowsy. A crucial incision was made over the site of the puncture, and the wound was washed out with a solution of permanganate of potash, and a bandage applied tightly above the ankle. Five minims of the ordinary pharmacopœal solution of strychnia was administered hypodermically, and repeated every five minutes. After the seventh injection the patient was seized with tetanic spasms, and vomited. Treatment was suspended for one and a half hours, when drowsiness again became marked; injections were again resumed at intervals of ten minutes. After the sixth dose (making thirteen in all) severe spasms occurred. During the intervals small quantities of brandy and extract of chicken were given. About seven hours after the snake bite the spasms ceased and the patient complained only of headache and tightness of the ligature on his leg. There was an increase of temp. (103°) for an additional eight hours, then gradually it declined, the patient making a good recovery. The authors have thought this case worthy of record for three reasons:

First, Because there is absolutely no doubt that the boy was bitten by a snake.

Second, Because there is absolutely no doubt that the snake was a cobra. We have the identical snake preserved in spirits. In how many cases of so-called "cure" of snake bite is there proof that the offending reptile was really one of the "Thanatophidia?"

Third, Because our patient recovered from the effects of the bite, plus the effects of ⅓ of a grain of strychnia introduced into his system by hypodermic injection. Whether the poisons were in anyway antagonistic to each other is another matter. Be this as it may, we shall have no hesitation in trying strychnia again should the opportunity occur.

[There is one other important point to be considered and that is the quantity of poison deposited in the wound, which rests chiefly on the number of stings inflicted previously on other subjects.—*Ed.*]

THE SPECIFIC TREATMENT OF ENTERIC FEVER.

In a paper read before the One Hundredth Annual Meeting of the Conn. Medical Society, Dr. Gustavus Eliot, strongly recommended a form of specific treatment, which embraces the use of calomel, in connection with the tincture of iodine and carbolic acid. In an experience of eight years with this plan of treatment, he has had the happiest results and uses none other.

The first requisite towards success is, to begin early, as soon as correct diagnosis is made. He commences treatment in every case, by giving ten (10) grains of calomel every other day until four doses are taken, also a mixture containing one drachm of carbolic acid and sufficient quantity of tincture of iodine to make four (4) drachms. Give patient four drops in a wine glass of water every four hours. To one who has been taught that cathartics should always be avoided in typhoid fever, this bold medication may seem reckless but the author claims better results than from any other plan.

He claims that the duration of the disease may be shortened and in some instances its course may be arrested. The treatment should be carried out at least ten days.

To the skeptical, he urges a trial of this plan, not in a single case but in ten cases. Trust not to memory, but keep a record and note results.

If desired, mineral acids may be prescribed, but be cautious of weakening the heart by use of the newer antipyretics. He does not recommend the distressing of the patient by plunging him in a cold bath.

TIC DOULOUREUX.

In the *Virginia Medical Monthly* for November, Dr John Dunn records a series of cases of inveterate tic douloureux, of years

standing, resisting all forms of treatment, which on closer examination proved to be of reflex nasal origin.

He says that, if in medicine, one form of treatment, be ever oftener wrong than another—and it is—or the conditions less understood, it is in the treatment of neuralgia: Is no disease, is there so often prescribed a "tonic to build up the system," as in this class of diseases. Whereas a thorough examination will quite frequently reveal the cause of the trouble to be due to some abnormal condition of the nasal cavities which can be easily removed.

The two most frequent causes of reflex trigeminal neuralgia, are, hypertrophied turbinates, and septal spurs or ridges. This painful affliction may also be reflex from other conditions than the nose: as from the eye, or ear.

Having a case which is dependent on these causes, of course the rational mode of treatment would be to get rid of the hypertrophied tissue, which can be done, by any of the approved methods. But unless the operator understands his business, or follows out the proper after-treatment, he will find his work of no avail. Having removed the hypertrophied tissue or spurs, he may have severe hæmorrhages, which become very annoying.

Varieties of plugs, etc., have been recommended for this condition, all of which he has found to be deficient. The most satisfactory intra-nasal dressing he has used, is cotton soaked in pure semi-solid Albalini: A plug is made of the desired shape and size and inserted in the nose: The Albaline effectually checks the tendency for the raw areas to send granulations into the cotton, and acts as a good hæmostatic. It can be removed at any time, and is not irritant.

The more one has to deal with neuralgia of the trigeminus, the more will we be convinced, that it most frequently results from some ocular or intra-nasal trouble, and that internal medicine should be the last resort.

TREATMENT OF CYSTITIS IN WOMEN.

In a paper read before the Missouri Valley Medical Society, by Dr. Crummer, he advises carbonate of lithium, in doses of five grains, or Londonderry lithia water and Salol in doses of from twenty to thirty grains thrice daily, in the acute forms of the disease. In severer cases, especially those found in the puerperal state, washing out the bladder with antiseptic solutions. In chronic cystitis the same treatment is of great service. The physician, must use caution in introducing the catheter, for purposes of irrigation, or matters will be made worse. The ordinary double current catheter is useless; better use a single catheter with a rubber tube and funnel affixed; clean, hot water is then poured in, until the bladder is full, when the end of the tubing is lowered and the fluid runs out, repeating this maneuver as often as necessary. For infection, resorcin, or boric acid is best, never using more than two or three ounces of solution at a time, lest harm result from over-distention.

Uterine displacements do not cause bladder irritations, as was formerly taught. It is generally due to pelvic inflammation. Especially is this true of gonorrhœal salpingitis, which must be relieved by operative treatment or otherwise, before irritation ceases. Tincture of Hyoscyamus or of Belladonna will give better results than Opium for the relief of pain.

Book Reviews.

Diseases of the Lungs, Heart and Kidneys, By N. S. Davis, Jr. A. M., M. D. The F. A. Davis Co., publishers, Philadelphia and London, 1892. No. 14. In the Physicians and Students' Ready Reference Series. Price $1.25.

This volume also comprises a part of the topics lectured upon, by the author, in the Chicago Medical College. The different subjects are described in a clear, concise manner, perhaps going to the extreme of stating what is probable rather than positively true. In his treatment of disease, the author gives explicit directions, as to the use of drugs calling particular attention to the exact time when a drug is indicated, so as to get its best effects.

The chapters devoted to asthma and pneumonia are full and complete. The author boldly states his opinions and gives his reasons for the same. While the prescriptions are given in the metric system, they are also written in the regular way. It is a well written work, fully up to date, and should find a place in the physician's library.

Diseases of Women, A manual of non-surgical gynecology, designed especially for the use of Students and general Practitioners, by T. H. Davenport, A. B.

M. D. Second edition, revised and enlarged, with numerous illustrations. Lea Brothers & Co., Philadelphia, Pa., 1892. Price $1.50.

In writing this book, the author states that he had two main objects in view, vis: "to give the student clearly, but with considerable detail, the elementary principles of the methods of examination and the simple forms of treatment of the most common diseases of the pelvic organs, and, to help the busy practitioner to understand and treat the gynecological cases which he meets with in the course of every-day practice."

The rapid advancement made in the knowledge and treatment of pelvic diseases caused the author to thoroughly revise and re-write the second edition, which is brought up to date in harmony with the present views, held by our popular teachers of gynecology.

The book is of more value as collateral reading than as a text-book.

Hygiene of the Sick Room, A book for nurses andothers, being a brief consideration of Asepsis,and Antisepsis, Disinfection, Bacteriology, Immunity, Heating and Ventilation, and kindred subjects for the use of nurses and other intelligent women, by William B. Canfield, A. M., M. D., Philadelphia, Pa. P. Blakiston Son & Co., 1012 Walnut St., 1892. Price $1.50.

This neat and useful work is the outcome of a series of lectures, delivered by this well known author before the University of Maryland Training School for Nurses.

Each disease is taken up in turn, as regards infection, and the methods of management of discharges, etc., are fully described. Several useful formulæ for disinfecting solutions are given, together with thorough instruction for the disinfecting, utensils, privies, etc.

The chapters on prevention of blindness in infants, and on ventilation are of special importance. The author endeavors to show the connection between bacteria and disease so that the latter may be prevented by destroying the former. While the book is mainly intended for nurses its usefulness can well extend into the physician's store of knowledge. The printing and get-up of the work speaks for itself.

Turpentine oil has been found to be a powerful deodorant of iodoform, particularly serviceable in removing the odor of that drug from the hands, spatulas, mortars, etc. Wash with a little of the oil, and, half a minute later, with ordinary soap.—*Merck's Bulletin.*

Periscope.

THERAPEUTICS.

MEMORIZING DOSES.

Dr. G. A. Wiggins gives the following rules:

1. The dose of all infusions is 1 to 2 ounces, except infusions of digitalis, which is 2 to 4 drachms.
2. All poisonous tinctures 5 to 20 minims, except tincture of aconite, which is 1 to 5.
3. All wines, from ½ to 3 fluid drachms, except wine of opium, which is 5 to 15 minims.
4. All poisonous solid extracts you can give ½ grain, except extract of calabar bean, which is 1–12 to ¼ grain.
5. All dilute acids, from 5 to 20 minims, except dilute hydrocyanic acid, which is 2 to 8 minims.
6. All aquæ, from 1 to 2 ounces, except aqua laurocerasus and aqua ammonia, which are 10 to 30 minims.
7. All medicated syrups you can give 1 drachm.
8. All mixtures, from ½ to 1 fluid ounce.
9. All spirits, from ½ to 1 fluid drachm.
10. All essential oils, from 1 to 5 minims.—*Pharm. Record.*

A NEW REMEDY IN DIABETES MELLITUS.

Professor Winternitz, of Vienna, recently drew attention to a domestic drug that he thought had been neglected. He related several renal cases that he had successfully treated by an extract made from the wild bilberry. His first experiments were directed toward the mucous membranes of the mouth, and finding it successful, extended his observations to the bronchi, bladder, and renal organs, where he met with equal success. He admitted having combined with the treatment the hydropathic applications, which were considered to have modified the avowed action and efficiency of the drug. Weil, of Berlin, has now added new testimony to the record of value attributed to this plant, in assuring us that it has acted in a wondrous fashion in apparently curing a young man of diabetes mellitus.—*N. Y. Medical Record.*

POISONOUS SYMPTOMS CAUSED BY EUCALYPTUS GLOBULUS.

Dr. Benjafield writes from Tasmania to the *Lancet:*

"I have been called in to cases of apparent poisoning by eucalyptus globulus, but all of them soon recovered. E. G.—, aged two years, climbed up to her mother's store of household medicines, and poured about a teaspoonful of pure oil on some sugar and swallowed it. Within half an hour she began to stagger. Then she became violently sick and lost all power over her legs, so that when attempting to stand she dropped down helpless. A sort of intoxicated torpor then set in. We could awaken her by shaking her and calling, but she immediately relapsed. The pulse was quick and strong; the pupils were slightly contracted. This lasted for about three hours, when she woke up perfectly right and ate a good meal. Another child drank an unknown quantity out of a bottle and had the above symptoms very marked; also had great difficulty in breathing; but, by report brought to me from the Bush, where it occurred, she recovered. From experience here, where we have never seen Asiatic cholera, I should expect it to be a good germicide and stimulant for this disease. It might safely be given in half-drachm doses, which would quickly saturate the system with the drug; or drachm doses in milk might be injected into the bowel."—*Md. Med., Jr.*

TREATMENT OF RINGWORM.

Crawford Warren, F. R. C. S. I., in the *London Lancet*, suggests the following treatment for this troublesome affection: The affected region should first be washed with soap and warm water containing a little carbonate of soda, and then well dried. Acetic acid should then be thoroughly applied with a small brush, and on the lapse of about five minutes, when the acid will have soaked into the part, an ointment composed of sixty grains of chrysophanic acid to an ounce of lanolin should be rubbed in. This treatment should be carried out daily for such a period as may be necessary.

ANTISEPTIC FORMULA.

Messrs. Christmas and Respant have endeavored to obtain a formula for an antiseptic solution that shall be powerful enough to destroy the microbes, and at the same time not so strong as to damage the organism.

The best results were obtained with the following formula:

℞ Acid carbolic..... 3ijss.
Acid salicylic..... gr xv.
Ess. menth. pip..... mx.
M.

A one-half per cent solution in water of this mixture destroys the microbes of diphtheria; those of typhoid fever cannot stand its action for more than half a minute. The anthrax bacillus is destroyed by a one-fifth per cent solution. This represents an antiseptic power five times greater than that of carbolic acid alone. Tuberculous sputa treated by a one per cent solution can be sterilized in a quarter of an hour.—*Weekly Review.*

PEROXIDE OF HYDROGEN IN INTESTINAL DISEASES.

Dr. Richards (*Med. Neuigkeiten*) has used this drug for twenty years. In carcinoma it removes the terrific odor, and, in combination with tannine, it reduces the secretions. Amongst other cases, the writer communicates one of ulceration (strumous) of the sacrum, complicated with adhesion and ulceration of the lower portions of the intestines and profuse suppuration in the rectum. At the same time the patient complained of an intolerable pain in this region, such as the author had never witnessed. Here a ten per cent. solution of the peroxide of hydrogen, with tannine and dilute hydro-chloric acid, gave the best results. Though the case ended fatally, the secretions and pain were easily controlled. In a case of chronic dysentery, with frequent dejections of thin, fetid stools, a solution of the remedy with tannine, injected high up into the intestine by means of a long rubber tube, once a day, produced at first discharge of pus or masses of pus and blood, and a cure in a short time.—*Med. Brit.*

COLD IN THE HEAD.

For cold in the head while in the acute congestive stage, there is no better remedy than gelsemium. One good large dose, say ten minims of the fluid extract, taken upon going to bed will effectually dispose of this troublesome and uncomfortable affection. One dose is usually sufficient. —*Medical Review.*

INFANT FEEDING.

A very important thing is the way the milk goes down into the child's stomach. The bottles are so constructed that the milk goes down too fast. Every child who sucks at the breast has to work for what it gets. One of the great troubles in artificial feeding is, the milk is cascaded into the stomach and immediately cascaded back again. Most of the sick babies are made so by some prepared stuff being cascaded into their stomachs in enormous quantities. Quantity is a great element in these disorders, and I have known too much food to make babies sick, even where the food was fresh milk.

I generally tell the mother to put a piece of pure, clean sponge into the nipple, so that the child must work with its gums and lips to draw the milk, and thus obviate the too rapid flow.—*Med. Era.*

CARE OF THE EYES.

Avoid reading when lying down. Sit with the back to the light or so the light will come over the left shoulder when reading, sewing or writing. When writing, should the light come from the right side, the shadow of the hand and pen or pencil falls on the paper, constantly shading the line of work and fatiguing the eye. Veils, especially spotted ones, are injurious to the eyes; and, if veils must be worn, they should be of the softest, clearest net. The eyes should be rested five or ten minutes after each hour's reading. The study of music and German is hard on the eyes, and the eyes should be rested more frequently and longer at a time when engaged in these studies. Avoid facing the lamp-light when studying. A bad stomach sometimes makes bad eyes. Attend to the digestion. Poor ventilation frequently weakens the eyes. When the eyes feel tired, bathe them with soft water, hot or cold, whichever on trial proves more comfortable. The hot water generally proves more beneficial.—*Ka. Med. In.*

In granulated eyelids, when the patient complains of dryness of the lids, the following treatment will give relief:

℞ Hydrarg. ox. flav..... grs. ij
Vaseline..... ʒ ss

M. Sig.: Apply a small quantity to the eye at bed-hour every night or every second night. When the ointment is too strong or too frequently applied at one time, the light will hurt the eye the next day.—*Kan. Med. Index.*

MEDICINE.

TYPHOID FEVER IN CHILDREN.

A. Moussous (*Arch. Clin. de Bordeaux*, No. 4, 1892) states that in a series of fifty consecutive cases of typhoid fever in children under the age of fifteen years he had only three deaths. He fully accepts the opinion that the disease is less serious in childhood than in adult life; there is less prostration, less hebetude, and seldom much diarrhea or pneumonia. At the same time the fever presents the same character as in the adult, and is often high—104° and even more; the pulse-rate is often also increased to 140, but this rapidity has not the serious significance which it would have in the adult, nor are complications so often observed. The disease, however, is more severe in infants under two years than in children above that age; this fact is called in evidence to support the view that one of the reasons of the comparative mildness of the disease in children is the activity of their digestive secretion, which tend to inhibit the growth of the pathogenic organism. Another reason he finds in the greater functional activity of the liver and kidneys leading to a more perfect elimination of the poisonous bodies produced within the organism during fever. On this head Moussous presents some new observations. Bouchard and others have shown that the toxicity of the urine is increased by typhoid fever, and that this toxicity persists for a varying period after defervescence, for as much as four or five weeks, when the disease is treated by the expectant method, for still longer if antipyrin is used. With the cold-bath method the toxicity of the urine is very high during the fever, but ceases quickly when defervescence has taken place (Roque and Weill); naphthol diminishes the production of the poisonous substances both during fever and during convalescence. Moussous finds that the toxicity of the urine in children suffering from typhoid fever is sometimes increased during the pyrexial period, sometimes at its close, but that in either case it becomes normal after a few days of freedom from fever. The elimination of the poisonous substances, therefore, in children who are treated by the expectant method, very nearly resembles elimination in adults treated by baths. Moussous does not recommend resort to

baths in the case of children, and notes one case in which serious syncope followed cold sponging. He advises the administration of laxatives every other day, a copious milk diet, and small doses of quinine.—*Arch. of Gynecology.*

SEXUAL HYPOCHONDRIASIS AND PERVERSION OF THE GENESIC INSTINCT.

Dr. Irving C. Rosee, of Washington, D. C., read a paper with this title, which was reported in the *Medical Record.* Omitting reference to such subjects as spermatorrhœa, venereal excesses, malformations of the genital organs, and the high degree of excitement often found among the insane, he limited his paper to the consideration of manœuvres of either sex to produce venereal orgasm independently of the conditions of normal coitus, and known comprehensively as genital abuse. Of all hypochondriacs of either sex, those who refer their sufferings to the genital organs, such as the onanists, nymphomaniacs, syphilophobes, etc., are the most miserable. It is an error to suppose that aberration of the genesic instinct is confined to our species, time, race, or latitude. Bestiality or sodomy has perhaps existed from all time. Juvenal mentions that monkeys were much sought after by women. A quotation from Plutarch indicates that there were relations between animals and human beings—men and women—in the Latin Empire. In our day this crime is less prevalent, though far from rare in large cities. The speaker mentioned numerous instances of sexual perversion which had come under the notice of the police in various cities in this country and Europe. A study of these cases shows that the question of sexual perversion is one of social hygiene touching mental pathology in many points. Lawyers and doctors and juries want to know whether such cases are criminal in their nature or are the result of insanity. Physicians recognize that continuous suggestion, or the reading of lewd literature, or excessive indulgence in fondling embraces under improper circumstances, etc., do effect the lower lumbar reflexes in such a way as to bring about sexual hypochondriasis, not to mention their influence as wide disseminators of immorality and as teachers of crime. Many of the methods of societies for preventing vice and bringing about prohibitory legislation as to vicious literature, etc., though well meant, are both reprehensible and impracticable. Overzeal leads to false philosophy and sophistry like that of the prohibitionists who would enact sumptuary laws. The treatment of such cases of unatural practices as have been referred to consist in prevention and education, with employment of proper medical and surgical measures. Self-control should be included, especially about the epoch of puberty. As an adjuvant nothing is better than gymnastic and athletic training. A verification of the judiciousness of this advice is often found in champion athletes, many of whom are temporarily impotent. —*Med. Age.*

RECTAL INJECTIONS.

The value of flushing the colon with properly sterilized water—hot, tepid, or cold—according to the special indications present, will be readily admitted in a long list of formidable diseases, some of which may be mentioned, as follows: Habitual constipation, with or without mental depression or active cerebral manifestations due to auto-infection, being so common, might be permitted to head the list; all occult nervous affections, associated or not with the uric acid diathesis, would naturally attract our notice, as it is well known that disordered innervation is generally conducive to the absorption of poisonous products from the alimentary tract. They are also serviceable in disease dependent upon pelvic congestion, such as uterine displacements, ovarian pains, and hæmorrhoids, for they contribute materially, though indirectly, to relieve the original cause, viz., hepatic insufficiency. In appendicitis, perityphlitis, and abscess, for which the *amœba coli communis* is now held responsible, they are invaluable.

Mild and even severe cases of dysentery and diarrhœa are often brought to a favorable termination without enemata, but it is safe to say that, with appropriate diet, all cases would be decidedly benefited, and many fatalities avoided, by the adoption of simple means. Enemata should find a place in the treatment of other disorders of this character, notably in the collapse of cholera morbus, yellow fever, and cholera, as well as in the conduct of cases of pleurisy or typhod fever.—*American Therapist.*

SOME INTERNAL USES OF CHLOROFORM.

In gastralgia with dilatation of the stomach; in the treatment of nervous vomiting; and of the vomiting of pregnancy, chloroform water in the dose of a small teaspoonful every half hour or hour is a very useful remedy.

In false croup employed in the proportion of one to ten drops in an ounce of water, to which is added a little glycerine; dose one teaspoonful every half hour; the effect is a very happy one.

In ulcer of the stomach small doses of chloroform given internally will often remove the pain and stop vomiting.

In the treatment of whooping cough three to six drop doses of chloroform in syrup will bring about very good results.

In the albuminuria and anasarca of pregnancy chloroform in twelve to twenty drop doses in sweetened water causes a rapid diminution in the albumen and the disappearance of the anasarca.—*Ex.*

MODE OF ACTION OF CALOMEL INJECTIONS.

P. de Michele, M. D., in a historical study of this subject, reproduced in *Merck's Bulletin*, thus summarizes his conclusions:

That calomel, administered by injections, is better tolerated, even in strong doses, than any other mercurial preparation, that it always produces in the tissues an inflammatory process with a subacute development, the final issue of which is a small residual and persistent cicatrix, that a dose of about 20 centigrammes of the remedy in a man requires for its transformation into albuminate and its absorption about 15 to 20 days; that iodide preparations administered at the same time by the way of the stomach accelerate considerably this transformation, so that they ought not to be used without great caution; that on account of its great efficacy, admitted at the present day by all clinicians, its moderate cost, and its capability for effecting the specific cure by two or three injections at long intervals without the least danger, the Scarenzio-Smirhoff method is not only a most valuable resource, but also one of the most important improvements introduced into anti-syphilitic therapeutics in the last thirty years.

HÆMORRHAGE FROM INTACT SKIN.

A Deriabin, of Osa (*Vratch*, No. 31, 1892, p. 784), reports the case of a previously healthy girl, aged eighteen, in whom there suddenly appeared, without obvious cause, a profuse hæmorrhage from the center of the tip of the nose, the anterior surface of the forearms, and the volar aspect of the finger tips. From the skin of the nose the blood escaped in the form of a single fairly thick stream, while from the upper limbs it ran in the form of numberless thin jets and drops, as if "from a watering-can." Sometimes the blood spouted in a jet more than a foot high, at others it simply oozed, while now and then the bleeding stopped altogether. The phenomenon lasted, with short intermissions, nearly four hours, and was followed by all the typical symptoms of acute anæmia (pallor of the face and mucous membranes, vomiting, giddiness, prostration, etc.), the girl gradually recovering in about four days. Careful and repeated examinations failed to detect any lesion of the integuments, except, perhaps, over the tip of the nose, where there could be seen "a largish orifice of a cutaneous gland plugged with a blood clot." The latter disappeared in a few days, "leaving a permanent bright red spot." The thoracic organs were sound, menstruation normal. The hæmorrhage did not recur up to the date of report (four months after the bleeding).—*Brit. Med. Jour.*,

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SLOW PULSE.

Among the causes of slow pulse are the following:

1. Diseases or injuries to the nerve centers, producing either irritation of the pneumogastric or paralysis of the sympathetic (accelerator) nerves of the heart.

2. Diseases or injury of the pneumogastric nerve, increasing its irritability.

3. Disease or injury of the sympathetic nerves of heart, paralyzing them.

4. Disease of cardiac ganglia, by which the influence of pneumogastric nerve preponderates.

5. Disease of the heart-muscle (degeneration), whereby it fails to respond to the normal stimulus.

6. The action of poisons, as lead or tobacco, either on nerve endings or centers. The poison generated in salt fish.

Another possibility is *malarial poisoning.*—*Dr. D. W. Prentiss.*

THE EFFECTS OF ACIDS ON THE FUNCTIONS OF THE STOMACH.

1. Acids throw down a considerable precipitate of mucus.
2. They increase the cellular elements of the gastric contents.
3. Their introduction is followed by butyric-acid reaction, most marked after hydrochloric acid.
4. Larger quantities of the acids result in a considerable effusion of bile into the stomach.
5. They stimulate the secretion of pepsin, but have no influence upon the secretion of hydrochloric acid.
6. Their long continued administration is followed by marked diminution of the secretion of hydrochloric acid.
7. Even in large quantities hydrochloric acid produces no gastric disturbances. On the contrary, a continued administration of the acid is attended with a feeling of well being.
8. The difference in the effect between acids and the alkaline salt on the gastric functions consists in the fact that the alkaline salts dissolve the mucus and decrease the secretion of pepsin, while the acids precipitate the mucus and increase the secretion of pepsin.

The disappearance of the alkaline salts from the stomach is followed by a decided increase of the hydrochloric acid secretion. This does not occur, or only to a slight degree, in the case of acids. Both th eacids and salts, in large quantities in continued use, have the same effect in lowering the activity, and finally in destroying the function of the glands secreting hydrochloric acid.—JAWORSKI, in *Centralblatt fur Klin. Med.*

THE DANGER of gall-stones, as recognized by many observers, are as follows:

There is danger of exhaustion from the repeated attacks.

Fatal collapse from pain may occur.

Fatal jaundice may supervene.

Dropsy of the gall-bladder and danger of it rupturing.

Empyema of the gall-bladder.

Abscess of the liver.

Local peritonitis.

Perforation of the gall-bladder or gall-ducts, causing abscess, peritonitis, septicæmia.

Intestinal obstruction or hæmorrhage.

SURGERY.

A modification of Teal's rectangular flap operation is suggested in the *Medical Record*, by Dr. Robert J. Reed, whereby the length of the flaps can be materially reduced. It is in case of injury especially where most of the sound tissue is on one side of the limb that this operation is best suited. In Teal's operation the ends of the flaps are stitched together, and this requires the length of the short flap to be one-fourth the circumference of the limb where the amputation is to be done, while that of the long flap is one-half the circumferenee. The modification suggested is in the manner of coaptating the flaps. Each flap being in breadth half the circumference of the limb, and containing only skin and subcutaneous tissue, the short one extends only to the level of the sawn bone, the long one being in length one-fourth the circumference of the limb. The sides of the long flap are turned up and stitched to the end of the short flap at the center of which they meet, the length of the long flap being equal to one-half the breadth of the short. The end of the long flap is thus doubled on itself and stitched together. The suture line is then in the form of a T, the horizontal arm corresponding to the arm of the short flap and the perpendicular extending from the center of the short flap to the fold in the end of the long flap.

AN INTRA NASAL TUBE.

A method of holding the nasal bones or cartilages in place after fracture or operation wounds without interfering with nasal respiration has long been desired (*Lancet Clinic*). Dr. J. P. Gibbons has apparently filled the long-felt want. He recommends tubes of perforated metal so shaped as to fit closely in the nares. The perforations in the tube permit of the normal functions of the turbinated bodies being fulfilled at least in part. By putting a small sieve in the end of the tube pollen may be excluded without stopping nasal respiration. In this way the doctor hopes to ward off hay fever in those subject to this malady. By doubling a rubber tube over the metal one, and filling the interspace with air or water from a syringe, epistaxis may be checked while breathing is still carried on through the nose. For

this last purpose a female catheter will do as well. For use after operations, if the perforated tube is as successful in the hands of others as it is in those of the inventors, it will be a valuable addition to the armamentarium of the surgeon.

SUTURING OF DIVIDED TENDONS.

Dr. A. H. Meisenbach (*Medical Fortnightly*) says: In the suturing of divided tendons, in order to obtain good results the following indications must be met: (1), The utmost care in carrying out complete aseptic and antiseptic measures. (2), Enlarging the wound to such an extent that a free field for operation is obtained; extensive opening of a sheath, if necessary, to easily catch up retracted tendons. (3), Care in suturing the corresponding cut ends with silk or catgut, preferably catgut. (4), The ends of tendons, if ragged, may be resected, so as to get smooth edges. If not enabled on this account to approximate the ends, with an intervening suture good results may still be expected. (5), Careful suturing of the sheath with continuous catgut suture leaving an opening for drainage at the site where tendons are sutured. (6), Appropriate position on a splint, the parts being so placed as to relax the sutured tendons.

OBSTETRICS.

INFANTILE PARALYSIS;—TREATMENT.

At first, according to Dr. J. Simon, external methods are used, slight revulsion over the spinal cord about the origin of the roots of the nerves, with dry cups or application of croton oil, mixed with some menstrum; or mustard leaves rather than cautery points and the other more painful methods of vesication. Next give stimulating baths (in bed), using vapors, etc. Thirdly, sedation of the nervous system by chloral, aconite, or conium. In the second week combine electricity with tonics as follows: Galvanization by weak continuous currents (2 to 4 milliampères). Apply the positive pole by slipping it on the shoulder, and put the negative pole in a basin of water slightly salted, into which the hand is put, use this for eight to ten minutes, and notice that the positive pole does not blister the shoulder. If it gets too red reduce the strength of the battery. Later use the faradic current as a change, but with weaker current. Slight massage and friction may be made also. Give the following.

℞ Tincture nux vomica..... 1 gramme
Tincture colombo, } āā 4 grammes.
Tincture cascarrillæ, }
M. S.: Give eight or ten drops as a dose.

In eight or ten days commence an arsenical treatment by a half to one milligramme of sodii arsenias.

During convalescence use sulphur baths or salt-water baths, or sea-baths, for three minutes at a time only.—*Arch. of Pæd.*

GYNECOLOGY.

PREGNANCY IN AN OVARIAN SAC.

Dr. Mackenrodt has recently shown to the Obstetrical and Gynecological Society of Berlin (*Prov. Med. Jour.*) a very interesting specimen of an extra-uterine gestation, which would formerly have been hailed as an undoubted specimen of that disputed species known as "ovarian pregnancy." It was from a patient who had been successfully operated upon for extra-uterine pregnancy. The gestation cyst was about the size of a hen's egg. In the lower part of its wall were remains of ovarian tissue and a large corpus luteum separated by a thin membrane from the general cyst cavity. The amnion could be defined above, and the chorion and placental rudiment were easily recognized. The fallopian tube and its fimbriæ took no part in the formation of the cyst wall, for the unaltered fimbriated extremity projected completely within the cyst. Blood had entered the ostium externum and had formed a secondary hematoma in the tube. Under what condition, then, could a cyst be formed containing the ovary, the unaltered end of the oviduct, and also an ectopic gestation? The explanation seems to be as follows: The patient was the subject of that congenital condition which is called an ovarian sac or ovarian tube (the ovarial tube of German authors). This was first described by Richard in 1853, under the name of tubo-ovarian cyst, and it was supposed to be an ovarian cyst which had established an adventitious connection with the tube. But it is now held that in these cases the fallopian tube ends from the first in a peritoneal sac which also contains the ovary. Considerations drawn from comparative anatomy support this view, for a further exposition of which the reader is referred to Mr. Bland Sut-

ton's recent work. Under such conditions as the above there had developed in the case under consideration an ectopic gestation within the ovarian sac. Such an event is not unique, but in all other recorded cases the fallopian tube and fimbriæ have taken part in the formation of the cyst wall, rendering the true nature of the development much less evident. Hence the special interest of this case. No embryo was discovered in the case, and the cyst ruptured in extraction.

VULVO-VAGINITIS IN YOUNG GIRLS.

Contagion is the most frequent origin. Mechanical causes (opanism, oxaluria defloration) have been noted rarely. An eruptive fever, eczema, impetigo herpes of the vulva are sometimes the origin. The more frequent cause is contagion, not venereal, but of varied nature. A lying-in woman who has blennorrhagic discharge and who transmits a purulent ophthalmia to her new-born may give a vulvo-vaginitis to the child who sleeps with her or who uses the same toilet articles.—*Arch. of Pediatrics.*

NEWS AND MISCELLANY.

A NEW PROFESSORSHIP IN THE JEFFERSON MEDICAL COLLEGE.

At a meeting of the Board of Trustees held on Wednesday, November 30th, 1892, Dr. G. E. de Schweinitz, was, on the unanimous recommendation of the Faculty, elected Clinical Professor of Ophthalmology in the Jefferson Medical College.

At the time of election Dr. de Schweinitz was Professor of Ophthalmology in the Philadelphia Polyclinic and lecturer on Medical Ophthalmoscopy in the University of Pennsylvania.

A DIPHTHERIA EPIDEMIC CAUSED BY ICE

The Washington newspapers report the singular origin of an outbreak of thirty-two cases of diphtheria, of which fifteen proved fatal, that occurred in a small locality in that city. The body of a child that had died of diphtheria was packed in ice for two days, and when the body was transferred to the coffin, the undertaker threw the ice on the ground outside his shop. Three children were seen eating the ice, and in eight days they presented acute symptoms of diphtheria and died in a few hours. In all, thirty-two cases of the disease were ascribed to the deposit of the ice on the ground.—*Medical Review.*

PUBLIC DUTY OF PHYSICIANS.

Herodotus tells us that the Babylonians had no physicians, that when anyone was sick he was carried into the streets and placed where the greatest number of passers-by could see him; everybody was bound to stop and consider the case, and if an individual paused who had suffered in what seemed to him a similar manner, he was compelled to explain the method of his cure. There is no necessity for this sort of thing now, although a large section of the public enjoys nothing more than suggesting remedies for all sorts of complaints, and dabbling generally in a little physic. But there never was a time in the history of civilization when there was greater need that everybody should recognize the fact that he owes a medical duty to his neighbor which he is bound to perform.

Dr. George Gould recently delivered an address in Philadelphia on the subject "Everybody's Medical Duty," in the course of which he bitterly complained of the way in which the public at large leaves the medical profession to struggle under its Atlantean world of deputed responsibility. The indifference, the want of sympathy, to say nothing of the actual opposition experienced by those whose work it is to contend against disease, is as discouraging to our profession as it is disgraceful to our age of science. There never was a body of men animated by a spirit of devotion and self-sacrifice such as characterizes the medical practitioners of the age. How is this devotion and self-sacrifice recognized? The quacks, the charlatans, and the knaves make fortunes, while educated and conscientious practitioners are expected to do a large amount of work for nothing. Up to now the work of the physician has been the cure of sick persons. Now it has largely become the prevention of sickness. Patients will co-operate more or less in the work of being healed of their diseases, and are not wholly ungrateful to the healer, but those who are in daily danger of becoming patients will do little or nothing

to assist the men who are fighting to keep disease from their door. They laugh at bacteria and mock at microbes; carry the germs of disease in their clothes from house to house; sweep up the dust of the streets in their trailing skirts; take little or no pains to disinfect the excreta from such infectious cases as occur in their own homes; oppose with all their influence the erection of hospitals for infectious diseases in their midst, careless as to what becomes of the patients so long as they pass not by their own doors; impede the efforts of medical officers of health and inspectors of meat and other food to improve the hygienic condition of our towns and the quality of food we consume; disregard the authoritative condemnation of the corset, and in a multitude of ways help to make the work of the modern physician as hard as possible. Chaldea and Babylon could have taught this, at least, that everybody is bound to help the State to the utmost of his power in the battle against disease and death.—*British Medical Journal.*

Writing of the physician on the witness stand in the *New York Medical Examiner,* Austin Abbott, Esq., Dean of the New York University Law School, says: If a capable expert witness with strong convictions proves to be weak, or produces a weak effect upon the jury, it is usually because he does not get farther than the expression of mere opinion. The strength of a medical witness is not in the confidence of his opinions, but in the intelligible reasons he is able to give for them. The cogency of expert testimony depends on moderate opinions clearly supported by reasons intelligible to the jury. Of course upon many subjects the jury may not be capable of understanding, in a scientific sense of that term, the reasons for an opinion; but they are very quick to feel the difference between an opinion for which the speaker can state clearly reasons the character of which are intelligible in a popular sense, and one who has an equally confident opinion but is at a loss to make it clear that he has good reasons. Next after non-partisanship, clearness and lucidity in describing such matters as the jurors can distinctly conceive appears to be important, with the ability to give strong reasons, intelligible if possible in detail, and if not, intelligible at least in nature, for the conclusions arrived at. And lastly should be mentioned the freedom to make frank statement of the existing scientific doubts or uncertainty regarding any of the non-essential points in the case.

WOMAN'S PLACE

Lies not in medical paths, according to the American *Practitioner and News*, which goes on to say: That woman is capable of high education, and of doing practical work in science, and doing it well, no man with the record of her doings before him can deny. And if, when the schools are open to her, and she has duly qualified herself for medical work, medical privileges and medical honors are refused her, no one can doubt the injustice of the refusal. Nevertheless it is certain that, except in a few specialties, medicine offers no place to woman for her best work.

The rule is simple: no work benefits woman if in its pursuit she is compelled to unsex herself; that she must do this in medicine admits of no argument. This being the case, the men of the profession have nothing to do but to courteously open the door for woman, bow her in, and trust to the law of the survival of the fittest for the consequences.—*Med. Review.*

A Complicated Case.—One of our physicians recently received the following letter from a country physician (?): "Dear dock I hav a pashunt whos phisicol sines shoes that the windpipe was ulcerated of, and his lung have dropped intoo his stummick. He is unable to swoller and I feer his stummick tube is gon. I hav give hym evry thing without effeckt. His father is welthy Onerable and influenshial. He is an active membber off the M. E. Chirsch and god nos I dont want to loose hym. what shall I due. ans. buy returne male, yours in neede."—*Ex.*

Like Other Folks.—Clem—"How's de doctah gettin on, Rastus?"

Rastus—"He ain't no bettah, Clem, an' he had to call in a brudder physician."

Clem—"Why don't he cure himself?"

Rastus—"Kase doctors is jes like other folkeses; wen day's sick dey's got ter hab a physician and when dey ain't sick dey kin cure derselves—"

Dr. Charles L. Dana has made a very careful study of 614 male alcoholics treated at the Bellevue Hospital. He believes that strychnine has a certain degree of specific effect in inebriety and in alcoholic intoxication. In acute alcoholism, when the system is overwhelmed with the poison, one-sixtieth of a grain every two or three hours; in the chronic form, it should be administered in good doses for a considerable time. In ordinary acute delirium of alcoholism, twenty to forty grains of chloral, repeated in smaller doses in two or three hours, and combined with digitalis and strychnine, is the safest and surest means of controlling the excitement and securing sleep. A preliminary laxative, and a careful diet of hot milk and beef tea with red pepper should be insisted upon. In febrile delirium tremens, depressants must be used with care; cold baths or cold wet-packs, with friction, must be applied every two or three hours while the temperature remains high. Hypodermic injections of morphine are rarely needed, and he does not advise them.—*New York Medical Record.*

Biggs—Speaking of long lives, I had an uncle on my mother's side who lived to the age of ninety-nine.

Diggs—Oh, that's nothing! My aunt Sally Smasher didn't die till she was past one hundred and eight.

Young Man in the Corner—I had a grandfather who beat that record all hollow.

Biggs—When did he die?

Y. M. I. C.—He didn't die at all. He's alive yet.

He Hadn't Taken Anything.—"Have you taken anything for your influenza?" asked the doctor of a long, lank, hungry-looking man who came to him complaining of being "all run down," his appearance verifying his words.

"Well, I ain't been takin' much of anything, doctor—that is nothing to speak of. I tuk a couple o' bottles o' Pinkham's bitters awhile back, an' a bottle o' Quackham's Invigorator, with a couple o' boxes o' Curem's pills, and a lot o' quinine and root bitters my old woman made up. I 've got a porous plaster on my back an' a liver pad on, an' I'm wearing an electric belt an' takin' quinine and iron four times a day, with a dose or two of salts ev'ry other day. 'Ceptin' for that, I ain't takin nothin'."—*Ex.*

Human Nature.—A little boy of four years has for some time had a habit of waking about midnight and calling for a drink of water. At last his mother told him that she would not get up any more to wait on him; that she would put a pitcher of water and a glass on the stand near his bed, and that if he wanted water in the night he must get up and get it himself. She placed the water on the stand in his sight and left him. That night, at the usual time, she heard the boy's call—"I want a d'ink o' water! I want a d'ink o' water!" But she paid no attention. He called two or three times, and after he had whimpered a bit she heard him get up and thump along the floor to the stand. And through the darkness came this very positive ejaculation. "I hope I thpill every jam jop."—*Med. Review.*

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY FROM NOVEMBER 27, 1892, TO DECEMBER 3, 1892.

The leave of absence granted Major John C. Skinner, Surgeon, U. S. Army, on account of sickness is extended six months on account of sickness.

Captain Henry P Birmingham, Assistant Surgeon, U. S. Army, is relieved from duty at Boise Barracks, Idaho, to take effect upon the expiration of his present leave of absence, and will then report in person to the Commanding Officer, Fort Grant, Arizona Territory, for duty at that post.

By direction of the Secretary of War, paragraph 3 of Special Orders, No. 232, October 3, 1892, from this office, directing Major Robert M. O'Reilly, Surgeon, U. S. Army, to report for duty as Attending Surgeon, in this city on December 15, 1892, is amended to direct him to so report, on January 15, 1893.

The ordinary leave of absence granted Captain Eugene L. Swift, Assistant Surgeon, U. S. Army, is changed to leave of absence on Surgeon's certificate of disability, and extended as such two months.

The extension of leave of absence granted First Lieutenant Samuel R. Dunlop, Assistant Surgeon, U. S. Army, and further extended one month.

So much of par. 2. S. O. 232, A. G. O. October 3 gr. as directs Captain Junius L. Powell, Assistant Surgeon, U. S. Army, to repair to Fort Monroe, Virginia, for duty at that post, is revoked, and he will upon the final abandonment of Fort Randall, South Dakota, report in person to the Commanding Officer, Jackson Barracks, La., for duty at that post, relieving Captain William C. Borden, Assistant Surgeon. Captain Borden on being relieved by Captain Powell will report in person to the Commanding Officer, Fort Adams, R. I. for duty at that post.

Major William M. Gardner, Surgeon, U. S. Army, is relieved from further duty at Angel Island, California, and will report in person to the Commanding Officer, Fort Keogh, Montana, for duty at that post.